

PURCHASING

FEBRUARY, 1955

In this issue:

FEB 4 1955
ENGINEERING
LIBRARY

Better Teamwork between
Buyers and Engineers

page 69

Survey of Salary Incentives for
Purchasing Agents

page 75

Handling Variances in the Cost
of Purchased Materials

page 82

Statistical Control.. The Key
to Inventory Management

page 92

Commodity and Business Trends

page 101

Report Purchasing Performance
in Terms of Profits

page 114

and other informative features

TABLE OF CONTENTS

PAGE 5



THE TOUGH JOBS GO TO TEXACO

HOOVER VACUUM CLEANER

parts, for example, and parts for Hoover Steam and Dry Irons are all machined with Texaco — and have been for the past eight years.

Results have been outstanding. Hoover is getting excellent tool life and fine finish on machined parts . . . and consistently low machine maintenance costs are reported.

Manufacturers everywhere find Texaco Lubricants and Lubrication Engineering Service big helps in keeping production and product quality high, unit costs low.

A Texaco Lubrication Engineer will be glad to help you achieve these same benefits. Just call the nearest of the more than 2,000 Texaco Distributing Plants in the 48 States, or write:

The Texas Company, 135 East 42nd Street, New York 17, N. Y.



TEXACO Lubricants, Fuels and Lubrication Engineering Service

TUNE IN: TEXACO STAR THEATER starring JIMMY DURANTE or DONALD O'CONNOR, on TV Sat. nights. METROPOLITAN OPERA radio broadcasts Sat. afternoons.

For More Information Circle No. 102 on Inquiry Card—Page 17

PURCHASING

The National Magazine of Industrial Purchasing

STUART F. HEINRITZEditor

EDITORIAL STAFF

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HUGH PELOTT, District Mgr.Chicago
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DWIGHT JENNETTLos Angeles
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EDITORIAL AND EXECUTIVE OFFICES

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BRANCH OFFICES

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NBP

EPA

VOL. 38, No. 2

FEBRUARY, 1955

Clean Up the Catalog File	65
Let's Get Together	N. J. Gibbins 69
A Statement of Purchasing Policy	71
PURCHASING Reports on Purchasing Opinion	
Should Management Raise Salary Incentives for Purchasing Personnel?	75
Price Tags for Purchasing	77
Buying Printed Forms on a Yearly Basis	K. W. Merritt 79
Handling Variances in Purchased Material Costs	82
The Human Side of Management	L. F. Robbins 85
Legal Excuses for Delayed Deliveries	A. W. Gray 88
Requisition: Mineral-Free Water	J. E. Burwell 90
Statistical Method of Inventory Control	W. F. Hoehing 92
Ideas from Employees	Phil Lance 99
New Purchasing Set-Up at DuKane	100
The Pulse of Business	
Commodity and Business Trends	101
15 Ways in which Advertising Affects Purchasing and Distribution	W. M. Dugdale 109
Purchasing Ductile Iron	K. Goodman 112
Measure Purchasing Performance in Terms of Profits	J. Spivack 114
Louisville Association's Portable Purchasing Library	117
Recent Legal Decisions Affecting Purchasers	L. T. Parker 118
More Production at the Typing Station	176

MONTHLY FEATURES

Washington Report	13
New Information for Your Catalog Files	17
News of Your Suppliers	22
F. O. B.	28
Highlights	67
New Products—Ideas	128
Office Equipment and Supplies	173
Among the Associations	184
Personalities in the News	248
Industrial Developments	258
Buyer's and Seller's Mart	334
Letters to the Editor	336
Index to Advertisers	338

FREE INFORMATION SERVICE

To get further information on anything mentioned in this issue, use Reader Service Card opposite page 17

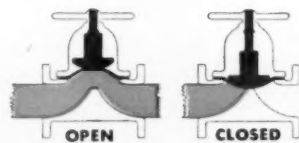
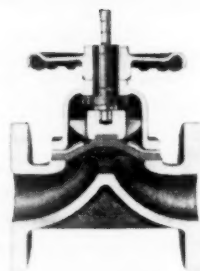


GRINNELL-SAUNDERS DIAPHRAGM VALVES

In hundreds of installations, the maintenance-saving design of Grinnell-Saunders Diaphragm Valves has accounted for important economies of labor and money. The only part that will in time need replacement is the diaphragm, and depending on the type of service, it may last for years. To replace it takes only a few minutes. You merely remove the four bolts holding the bonnet, leaving the body in the pipe line . . . remove the worn diaphragm, insert the new diaphragm . . . replace the bonnet and bolt it down.

No refacing or reseating required . . . no packing glands to demand attention.

Originally perfected for air and water service, Grinnell-Saunders Diaphragm Valves are now widely specified for many other applications. They greatly reduce replacement and maintenance expenses, especially in lines where corrosion, abrasion, contamination, clogging and leakage can be costly factors. Write today for the Grinnell-Saunders Diaphragm Valve Catalog . . . and assign your next valve problem to Grinnell.



Other Important Features:

Diaphragm absolutely isolates working parts from the fluid stream
Diaphragm lifts high for full, streamline flow in either direction
Diaphragm presses tight for positive closure
Body, lining and diaphragm materials to suit service

GRINNELL
WHENEVER PIPING IS INVOLVED



Grinnell Company, Inc., Providence, Rhode Island

Coast-to-Coast Network of Branch Warehouses and Distributors

pipe and tube fittings • welding fittings • engineered pipe hangers and supports • Thermolier unit heaters • valves
Grinnell-Saunders diaphragm valves • pipe • prefabricated piping • plumbing and heating specialties • water works supplies
industrial supplies • Grinnell automatic sprinkler fire protection systems • Amco air conditioning systems

WASHINGTON REPORT

for purchasing agents

February 1, 1955

ADJUSTMENT OVER

Current business conditions represent as much a return to peacetime normalcy as is likely to develop. That is the basis for wide acceptance that the post-Korean adjustments are over.

During the past 18 months there has been a scaling down of military spending—there has been adjustment in inventory levels—and a gradual withdrawal of Government from direct control over business.

From all current indications, these trends have gone as far as they will go.

* * *

MILITARY SPENDING HIGH

Military spending last July was \$2.5 billion and this was stepped up to more than \$3 billion in December.

Reduction in size of the armed services will mean some drop in rate of military purchase of some supplies, but the Eisenhower proposals to increase the pay of the armed forces, and for an enlarged Reserve program will probably mean that the actual disbursements will be just as large—and possibly larger than the current rate of spending. There will also be pressure from Congress to put more money into the military air buildup.

The thinking now is that the rate of military spending has been stabilized—and at a very high level.

* * *

SEASONAL INVENTORY SWINGS

Inventory adjustment will continue to be geared to seasonal trends, with the overall level of inventory remaining at close to what it is currently.

Holiday buying moved a huge volume of goods off the shelves into consumer hands, and replacement buying by distributors and merchants will constitute an important demand factor.

At no point in the last several months of business pickup has there been any indication of a shortage of inventory. It would therefore seem that while there may not be further liquidation, there won't be large-scale buildup.

* * *

STANDBY CONTROLS

Policy on Government controls calls for a system of standby controls for use in case of emergency, but to hold all else to a system of indirect influence as much as possible.

The type of action that the Administration favors is direct spending on public works, such as public buildings and interstate highways, as a method of giving a substantial lift to the economy



Hold it!—is it good enough for CRANE VALVES?

What you see here is routine procedure on raw materials coming to Crane. There's no unloading of the more than 3,000 incoming carloads per year until the Crane Quality Control Lab gives an unqualified O.K.

The extra care that Crane gives to raw materials, and similarly to every step in manufacturing, pays off in better valves for you. You can be sure that Crane stands for quality that results in lower cost in the long run.

That's another reason why thrifty buyers prefer Crane valves. They know they're investing in better piping performance as well as protecting against untimely and excessive maintenance. A mighty important consideration in these days of high costs. And, surely, the main reason why industry keeps using more Crane valves than any other make.

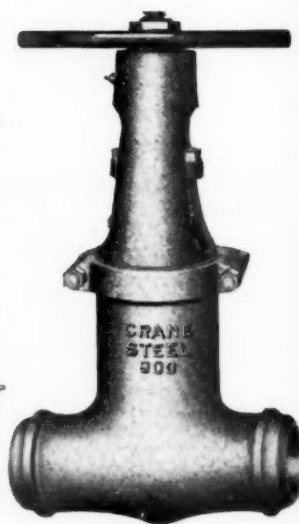
CRANE CO.

General Offices: 836 S. Michigan Ave., Chicago 5, Illinois
Branches and Wholesalers Serving All Industrial Areas

VALVES • FITTINGS • PIPE • PLUMBING • HEATING

CRANE'S FIRST CENTURY . . . 1855-1955

**Better Quality
Bigger Selection
in Valves
for Every Need**



WASHINGTON REPORT

continued

—tax adjustments to put greater buying power in consumer hands—and credit arrangements and trade concessions to stimulate export-import trading.

These aids are to be used sparingly during times of business prosperity—and to be laid on thickly to counteract a downturn.

* * *

BUSINESS MOMENTUM CARRIES THROUGH

Through the first half of this year, the momentum that was picked up in the end-'54 business revival will carry over. About mid-summer, it is felt that some further "nudging" by the Government will be needed to further stimulate the economy.

Important factor is that the Administration, with the concurrence of its most conservative advisers, has not hesitated to use direct action to boost the economy.

When the market for lead and zinc became soft, substantial stockpile buying was set in motion.

When credit for home building became tight, the Government intervened to indirectly make more money available. Credit terms were made more liberal for home purchase than ever previously conceived.

Now, the Government is setting in motion an expanded trade program with Latin America; also a program of highway construction that for the first time in history would make the Federal Government, for all practical purposes, wholly responsible for the interstate highway system.

* * *

POLICIES HAVE BEEN REVERSED

Many of these Administration proposals represent a complete reversal of policies talked about when the Republicans took over.

Then there was general talk of "hard money". On roads there was talk of turning the responsibility of interstate highways back to the States, with the Federal Government also giving up its portion of the gasoline tax.

On metals there was talk of letting prices find a reasonable level based on judgments in the market place.

Reason for the change in policy is the general realization that neither our domestic economy nor our foreign policy would stand still while we squeezed the water out of business and finance.

Cheap money can make the difference between 600,000 new housing starts during a year and the rate last year of more than double that figure.

A drop in Federal expenditures in construction during the first six months of last year, when there was no Federal money for airports and for roads, made a severe dent in the construction industry—and cut heavily into construction equipment sales.

* * *

FTC PROBES MERGERS

Federal Trade Commission probe of the post-Korean rash of industrial mergers will seek to determine the underlying causes—whether the mergers are due to:

1. The desire for product diversification.
2. The desire to lessen competition.
3. The desire of small or medium-sized firms to grow large rapidly through external expansion so as to compete more effectively with large firms already entrenched in the industry.
4. Financial failure of the acquiring firm to integrate its operations, either through "forward" acquisitions to a higher stage of fabrication or through "backward" acquisitions toward raw material sources.

FTC is studying some 209 mergers or acquisitions.



CATERPILLAR

LEDLOY 5120

Saves on Every Pre-combustion Chamber Assembly

In today's competitive market, any savings on a component is important, even on a product as large as the Caterpillar D8 crawler Tractor. Caterpillar Tractor Co., with an eye on costs, selected Ledloy 5120 for pre-combustion chamber assemblies in their diesel engines. As a result, machining costs have been reduced on each of the two parts that form the finished assembly. This reduction resulted from Ledloy's free machining properties, which reduced machining time and increased tool life.

Design called for copper brazing the two pieces together and nickel plating the entire assembly. *The Method:* The leaded steel was brazed and plated in the usual way, without special handling. *The Results:* Pre-combustion chamber assemblies made of Ledloy 5120 at a lower cost, met all requirements and are seeing service in Caterpillar-built machines around the world.

*Inland Ledloy License



Two component parts of the Pre-combustion Chamber assembly were machined from Ledloy 5120 cold drawn bars. Other leaded alloy steels and leaded carbon steels are available in all standard or S.A.E. compositions in any of our standard sections. Write for complete information about application of leaded steels to your product.



COPPERWELD STEEL COMPANY
(Steel Division) WARREN, OHIO

SEND FOR FREE
BOOKLET ON
LEAD-TREATED
ALLOYS



NEW INFORMATION FOR YOUR

Catalog Files



HIGH PRODUCTION PRECISION FINISHING

Catalog 1843-13 (24-pages, 2-colors) is a complete guide to a line of grinding and lapping machines for precision work under heaviest production demands. Full specifications are given.

Norton Company

Circle No. 1 on Inquiry Card—Page 17

AIR-TIGHT, WATER-TIGHT FASTENERS

Multi-purpose fasteners with neoprene washers are described in Brochure TL 97. It explains how their design prevents air or water leaks, protects surfaces, absorbs shocks, stops squeaks.

Townsend Company

Circle No. 2 on Inquiry Card—Page 17

USES OF RUBBER AND VINYL PARTS

Complete information on the applications of rubber and vinyl is contained in a 24-page 3-color catalog. There are illustrations of scores of molded, extruded & laminated parts.

Sun Rubber Co.

Circle No. 3 on Inquiry Card—Page 17

PRODUCTION, MAINTENANCE WELDING

A series of catalogs describes a full line of arc welding electrodes as well as rods and wire for gas, submerged arc and inert arc. There are data on chemical and physical properties.

Metal & Thermit Corp.

Circle No. 4 on Inquiry Card—Page 17

CLUTCH SELECTION, INSTALLATION, UPKEEP

Photographs, application drawings and engineering data give full information on over-running, indexing, backstopping and clutch coupling units in catalog No. 102. There are hints on maintenance.

Formsprag Company

Circle No. 5 on Inquiry Card—Page 17

INDUCTION, TORQUE MOTORS

Permanently bound and conveniently indexed, the 28-page brochure No. E103A lists physical characteristics, dimensions and performance curves of induction and torque motors for specific jobs.

Electric Indicator Co.

Circle No. 6 on Inquiry Card—Page 17

ULTRASONIC UNITS SOLDER FLUXLESSLY

A 10-page brochure covers applications of ultrasonic fluxless soldering and metal coating. Process is applicable to aluminum, copper, magnesium and silver, or combinations of these metals.

Aeroprojects Incorporated

Circle No. 7 on Inquiry Card—Page 17

HYDRAULIC CYLINDERS FOR GENERAL USE

Bulletin 54-68 deals with hydraulic cylinders for general industrial applications. Fully illustrated, catalog contains cutaway photos illustrating design features and installation hints.

Vickers Incorporated

Circle No. 8 on Inquiry Card—Page 17

DO YOU SELECT FAST MACHINING STEELS?

Relative machineability, using B-1112 as standard, of fast-cutting carbon, alloy and stainless steel is compared in bulletin No. 99-1. Other characteristics of some 17 analyses are given.

Joseph T. Ryerson & Son, Inc.

Circle No. 9 on Inquiry Card—Page 17

METERING INDUSTRIAL LIQUIDS

A list of nearly 150 chemicals and liquid ingredients, metered successfully with type S units, is included in bulletin No. 567. Chart helps selection of size and type meter for any use.

Neptune Meter Co.

Circle No. 10 on Inquiry Card—Page 17

MATERIALS COATED AT REDUCED COSTS

Techniques for applying low-cost plastisol coatings on wire goods, paper, electrical assemblies etc., are discussed in Technical Release No. 14. No costly equipment or solvents are needed.

Bakelite Co.

Circle No. 11 on Inquiry Card—Page 17

CORROSION-RESISTANT VALVES DESCRIBED

An illustrated 8-page bulletin describes Alcoyo 20 corrosion-resistant valves. It includes data on field tests made with various concentrations of sulfuric acid.

Alloy Steel Products Co., Inc.

Circle No. 12 on Inquiry Card—Page 17

COLD FORGING CUTS FASTENER COSTS

Complete information on special rivets, nails, screws and small parts, manufactured by the cold heading process, forms the text of Catalog No. 58.

John Hassall, Inc.

Circle No. 13 on Inquiry Card—Page 17

LOW ALLOY HIGH STRENGTH STEEL

Eight-page booklet D-122 gives fabricating data and other information on "A. W. Dynaloy," a low alloy, high strength rolled steel product, available in strip, sheets, cut lengths, and coils.

Alan Wood Steel Co.

Circle No. 14 on Inquiry Card—Page 17

PRODUCING SMOOTH WELD SURFACES

A welding technique permitting deposition of a root pass to produce smooth, uniform weld surfaces is the subject of a 10-page bulletin. Filler metals for finishing welds are listed.

Arcos Corp.

Circle No. 15 on Inquiry Card—Page 17

HOW TO BUY RUBBER, PLASTICS

Catalog No. 786 has been compiled as a guide to the buying of molded and extruded rubber and extruded plastics. It supplies specifications, terms, tolerances, tables of properties, etc.

Industrial Products Div., General Tire & Rubber Co.

Circle No. 16 on Inquiry Card—Page 17

WIDENS FIELD FOR METAL POWDER PARTS

A 4-page folder gives complete data on a sintered material, trade named "Steel Oilote." Its ductility (10% or more), impact resistance and fatigue strength enlarge profitable use of metal powder units.

Amplex Div., Chrysler Corp.

Circle No. 17 on Inquiry Card—Page 17

CARBON, ALLOY STEEL DRILL RODS

A descriptive leaflet on high speed, carbon and alloy steel drill rod is available. Grades, lengths, size ranges, finishes and tolerances are supplied. Composition of all grades is also included.

Allegheny Ludlum Steel Corp.

Circle No. 18 on Inquiry Card—Page 17

MAJOR PRODUCT COMPONENTS

Bulletin 1054-58 shows how thirty-five product component problems were solved with a line of air motors, compressors and vacuum pumps. Typical installations include boilers, hoists, etc.

Gast Mfg. Corp.

Circle No. 19 on Inquiry Card—Page 17

RAM HEAD MILLING MACHINES

Illustrated catalog No. RH-10 deals with a line of ram head milling machines offering choice of universal, vertical or quill type adjustable cutting heads, rotating full 460°.

Kearney & Trecker Corp.

Circle No. 20 on Inquiry Card—Page 17

VALVES, FITTINGS RESIST CORROSIVES

A comprehensive, illustrated 4-page circular describes the first line of all-molded PVC valves and fittings. They are unaffected by most corrosive chemicals used in industry.

The Lunkenheimer Co.

Circle No. 21 on Inquiry Card—Page 17

METAL CASTINGS EASILY PURCHASED

How a system of manufacturing 3000 standard shapes makes it as easy to buy metal castings as any ready-to-use item is described in a catalog titled, "Castings Without Pattern Costs."

Standard Foundry Products

Circle No. 22 on Inquiry Card—Page 17

WHERE, WHY A SAW IS USED

A catalog gives all pertinent information on saws. Designed as a working catalog, it tells where each saw is used, on what type of work and to what advantage, all in non-technical language.

Atkins Saw Div., Borg-Warner Corp.

Circle No. 23 on Inquiry Card—Page 17

DURABLE FLUORESCENT LAMP BALLASTS

Described in a 12-page, two color catalog, AIA File No. 31-F-21, is a line of fluorescent lamp ballasts of which, it is claimed, less than 30/100 of 1% fail to give more than two years' service.

Starring & Co., Inc.

Circle No. 24 on Inquiry Card—Page 17

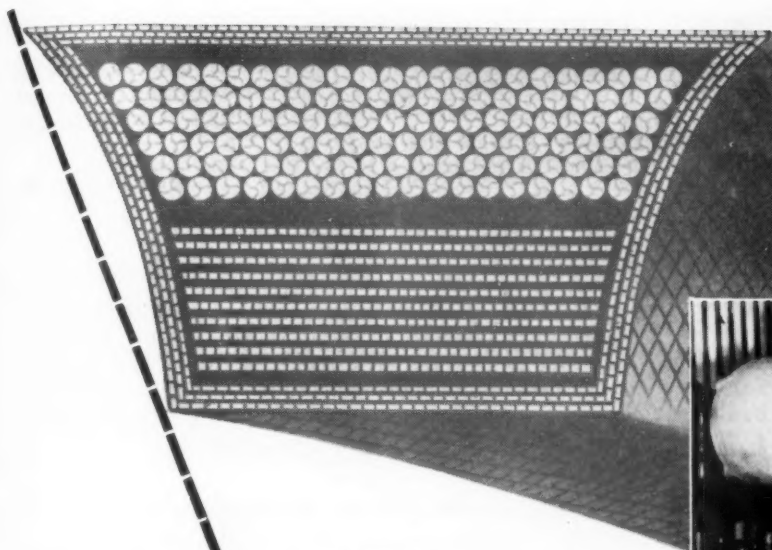
SELECTING TUBING SUITED TO USE

Users of stainless steel or high alloy tubing will find a 48 pp, 3-color catalog helpful in ordering tubing best adapted to their application. Data are supplied on 9 basic types.

Crucible Steel Co. of America

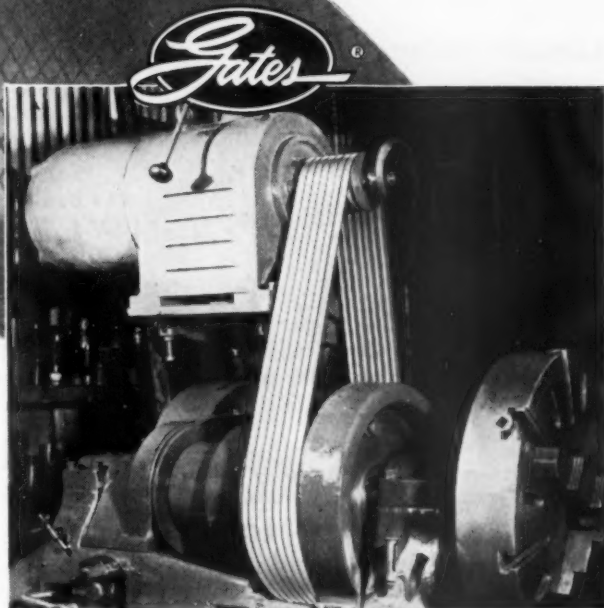
Circle No. 25 on Inquiry Card—Page 17

**Circle Card Opposite Page 17
to Obtain These Catalogs
Additional Catalogs on Page 20**



Under heavy load Gates Vulco Ropes—the V-belts with concave sides—grip pulley grooves more firmly and pull harder.

This large lathe was formerly driven by a flat belt which slipped on heavy cuts, stalled and broke tool bits. Savings on broken tool bits alone offset the cost of the drive the first year ...and production was increased 25%.



Concave sides keep belt costs down!



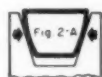
Industry is saving thousands and thousands of dollars every year by specifying Gates Vulco Ropes—the V-Belts with *concave sides* (U.S. Pat. No. 1813698).



Here's the interesting reason *why* Gates belts save money: On the bend around the sheave the *precisely engineered* concave sides (Fig. 1) of the Gates belt fill out and become straight (Fig. 1-A). Thus the belt makes uniform contact with the sides of the pulley. That means sure pulling power and *even distribution of wear*. Longer wear, fewer replacements cut belt costs...reduce down time...contribute to profits.



Simple test proves value of concave sides



Bend a straight-sided belt (Fig. 2) and feel the sides *bulge out* around the bend. The bulging sides prevent the belt from fitting evenly in the pulley groove (Fig. 2-A). Uneven contact causes uneven wear...shortens belt life...increases costs.

Keep belt costs *down* by specifying Gates Vulco Rope Drives—the V-Belt with *concave sides*. Belts you need are readily available from nearby distributor stocks. The Gates Rubber Company, Denver, Colorado—*World's Largest Maker of V-Belts*.

Gates Engineering Offices and Distributor Stocks are located in all industrial centers of the United States and Canada, and in 70 other countries throughout the world.

EPA 25-A

GATES VULCO ROPE DRIVES

For More Information Circle No. 117 on Inquiry Card—Page 17

APPLICATIONS OF 3 LIGHTWEIGHT MATERIALS

Unique design-through-production facilities in the three basic lightweight materials, aluminum, magnesium and reinforced plastics are described in a twenty-four page booklet.

Barium Steel Corp.

Circle No. 26 on Inquiry Card—Page 17

LONGER LASTING REAMERS

An 8-page release covers a wide variety of precision ground reamers. Due to manufacturing techniques in hardening and grinding, the reamers are said to produce more holes per grind.

The DoAll Co.

Circle No. 27 on Inquiry Card—Page 17

COAL VALVE

Bulleting No. 97 (8-pages, fully illustrated) describes a coal valve, which can also be used to handle similar granular material. It works even if coal is dry dust or fine and wet.

Stock Equipment Co.

Circle No. 28 on Inquiry Card—Page 17

CHOOSING DRIVE WITH PROPER CAPACITY

When using any standard motor, V-Drive Manual No. 197 simplifies choosing drives with proper hp, center distance and belt length. Details are supplied on drive design, pulleys, V-belts.

T. B. Wood's Sons Co.

Circle No. 29 on Inquiry Card—Page 17

MAGNET WIRE DATA IN POCKET SIZE FORM

Digest size catalog No. C-79-12A is easily carried in pocket. It contains information on magnet wire including readable charts, tables, drawings and photos.

Anaconda Wire and Cable Co.

Circle No. 30 on Inquiry Card—Page 17

FORGINGS DESIGNED FOR ECONOMICAL USE

A wide variety of forgings, including ones made from titanium and special alloys, is the subject of an illustrated brochure. There is emphasis on those designed for economical production.

Consolidated Industries Inc.

Circle No. 31 on Inquiry Card—Page 17

WOOD AS ENGINEERING MATERIAL

A profusely illustrated, 16-page booklet, "This is Teco," describes research facilities and services available for wood users for the better and more extensive utilization of forest products.

Timber Engineering Co.

Circle No. 32 on Inquiry Card—Page 17

OILLESS, SELF-LUBRICATING PRODUCTS

Included in a colorful 44-page catalog are technical drawings, photographs, breakdowns of components and sizes, lists of applications, etc., of oilless and self-lubricating bearings and parts.

Wakefield Bearing Corp.

Circle No. 33 on Inquiry Card—Page 17

USING THE RIGHT CUTTING TOOL

Of particular interest in catalog No. 55, dealing with cutting tools, are sections devoted to special purpose tools and tool engineering. A pictorial index aids proper selection.

Putnam Tool Co.

Circle No. 34 on Inquiry Card—Page 17

PURCHASING ELECTRIC HOISTS

Providing valuable information to a company in the market for electric hoisting equipment, brochure No. P-495-A (16-pages) contains illustrations, cut-away photographs, charts and diagrams.

Yale & Towne Mfg. Co.

Circle No. 35 on Inquiry Card—Page 17

MACHINING PROBLEMS OVERCOME

An elaborate brochure depicts actual case histories of both routine and seemingly impossible machining projects. Tooling problems encountered and tolerances met are described.

Connecticut Mechanical Industries, Inc.

Circle No. 36 on Inquiry Card—Page 17

SELECTING CAST IRON ALLOYS

The 28-page basic reference bulletin, No. A-69, presents the characteristics of modern nickel cast irons. 50 illustrations show usage.

International Nickel Co., Inc.

Circle No. 37 on Inquiry Card—Page 17

USES OF STRADDLE CARRIERS

Fast, horizontal materials-handling by means of straddle carriers is described in a fully illustrated and well-documented colored 16-page brochure titled: "The One-Truck Fleet."

Clark Equipment Co.

Circle No. 38 on Inquiry Card—Page 17

TOOLS FOR HIGH SPEED MACHINING

A 32-page catalog on turning tools, carbide or roller backrests, tap and die holders, cut-off blade holders, knurling tools, etc., contains data on their right use for high output.

R and L Tools

Circle No. 39 on Inquiry Card—Page 17

WHAT'S NEW IN STEEL CUTTING CARBIDES?

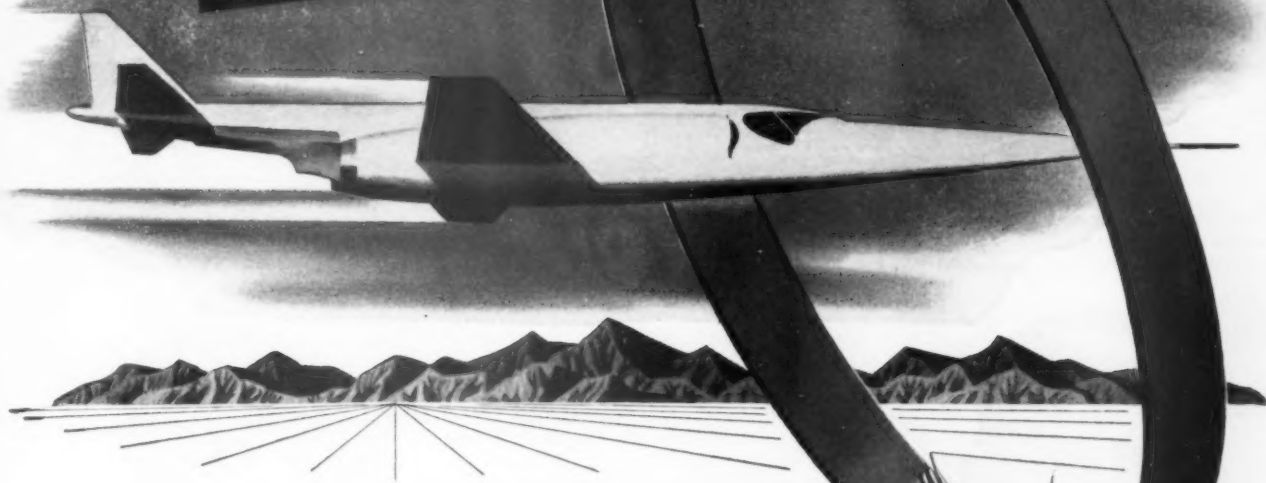
The 16-page brochure CT-305 covers prices and specifications of standard steel cutting carbides in series No. 300. Listed are all new tools and blanks added within the past 12 months.

General Electric Co., Carbology Dept.

Circle No. 40 on Inquiry Card—Page 17

**Circle Inquiry Card Opposite Page 17
to Obtain These Catalogs**

**MACHINING COSTS
CUT 40%**



...ON JET RINGS

By switching to flash butt-welding of extruded sections, we helped one customer cut fabricating costs of a jet engine ring from \$67.85 to \$41.93. A saving of \$25.92 per ring — roughly 40%.

This is one of many cases in our files where rolling and flash butt-welding of bars, sections, extrusions or plate has proven to be the most economical and practical method of fabricating circular components. Shown below are some other "American Welded" components.

If you require a similar part, it is very likely that this type of fabricating can cut your costs. Why not write our Product Development Division today? They will be glad to study your problem.

THE AMERICAN WELDING & MANUFACTURING COMPANY
460 DIETZ ROAD • WARREN, OHIO

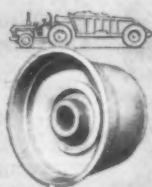
**AMERICAN
WELDING**



WELDING • MACHINING • FABRICATING



MACHINED RINGS
Rolled and flash-welded rings, machined to exact specifications and delivered ready for assembly.



WHEEL AND RIM ASSEMBLIES
Weldment of carbon steel bar and plate for use on heavy earth-moving equipment.



TURBINE FRAME ASSEMBLIES
Formed sheet metal bands and flash butt-welded rings fabricated into a jet engine component.



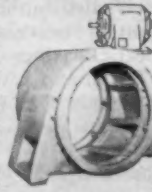
NOZZLE BOXES
Complicated welded assemblies of machined rings and sheet metal.



COMPRESSOR CASES
Welded band for hermetically sealed refrigerator compressor.



SPECIAL MILL ROLLED SECTIONS
Amweld can show you how to save critical material and valuable machinery time by use of these sections.



MOTOR FRAMES
Steel bars and plate formed and welded into industrial motor frames.



NEWS OF YOUR Suppliers



Joseph W. Kennedy, Jr., is now vice president in charge of the Ohio Seamless Tube Division of **Copperweld Steel**



J. W. Kennedy

Co., Pittsburgh. He previously served as operating assistant to the executive vice president.

The Palmer-Shile Co., Detroit, has appointed Raymond Shile as manager of its new eastern sales office in New York City.

Major changes in the executive office level of **General Electric Co., Schenectady, N. Y.,** have been announced. They include the formation of the Distribution Group composed of the Apparatus Sales Division, the General Electric Supply Co., International General Electric Co., and the General Electric Credit Corp. The Affiliated and Foreign Companies Group is discontinued. In line with this, appointments include the naming of Executive Vice President Henry V. Erben as group executive in charge of the new Distribution Group and of Executive Vice President Robert Paxton to succeed Mr. Erben as group executive in charge of the Apparatus Group. Canadian General Electric Co. becomes part of the Apparatus Group.

W. J. Holliday & Co., Indianapolis, has been made a distributor for **Reynolds Metals Co., Louisville, Ky.**

E. J. Summerhays and M. A. Ludwig have been appointed West Coast representatives for cross corrugated aluminum roll roofing by **Quaker State Metals Co., Lancaster, Pa.** They will cover California, Oregon, Washington, Arizona, New Mexico, Utah and Idaho.

Ara A. Cambere, formerly vice president and director of the **Oliver Iron and Steel Corp., Pittsburgh,** has been named assistant to **Bennett Archambault,** president of **Stewart-Warner Corp., Chicago.**

R. J. Miller, former sales manager of rectifier equipment, has been made manager, Rectifier Equipment Product Line, **Federal Telephone and Radio Co.,**



R. J. Miller

a division of **International Telephone and Telegraph Corp., Clifton, N. J.** He will be responsible for all engineering, manufacturing and sales functions of his department.

Morse Chain Co., Detroit, has named five new distributors in its nationwide distributor organization. They are: **Southern Bearings Service Co., Memphis, Tenn.,** and **Little Rock, Ark.; The Kelly Supply Co., Grand Island, Neb.; L. B. Adams & Co., Baton Rouge, La.; Fisher Bros. Co., Astoria, Ore.;** and **Neiman Bearings Co., St. Louis, Mo.,** and **East St. Louis, Ill.**

George T. Henderson has been named Detroit district sales manager for the **Hinde & Dauch Paper Co., Sandusky,**



G. T. Henderson

Ohio. Mr. Henderson has been with H & D for 20 years and was district sales manager in St. Louis until his new appointment.

Donald C. Buecker, who recently joined **Standard Pressed Steel Co., Jenkintown, Pa.,** has been appointed to the sales force and assigned to the Minneapolis office, covering all of Minnesota and western Michigan. Also, **Theodore H. Bourguignon,** a veteran of 13 years with firm, has been promoted to the company's outside sales staff. He will headquarter in Indianapolis and cover southern Indiana, southwestern Ohio and all of Kentucky.

Lewis-Shepard Products, Inc., Watertown, Mass., has named **George E. Campbell** as exclusive sales and service representative in the New York area.

James F. Davis is now sales manager of the **Morrisville, Pa.,** division of the **Pittsburgh Standard Conduit Co.**

Norman T. Bauer has been made service engineer for the Chicago sales territory of **Acheson Colloids Co., Port Huron, Mich.**

(Please turn to page 24)



now—the logs are lighter with **MUSCLES OF STEEL**

Gone are the days when muscles of man and beast were the only means of loading and hauling big timber out of the woods. Supplying present-day lumber needs is a job that would lick ten thousand Samsons.

It's a job that demands *muscles of steel*—rugged wire rope that lifts and pulls the heaviest logs with strength to spare.

We of Wickwire play a big part in furnishing these *muscles of steel* to American industry. Wherever wire rope is used—timbering, drilling, construction, mining, fishing, materials handling—there also you'll find Wickwire Rope helping to do a better, more efficient job. That's the reason for the quality and extra care that go into its making.

every industry benefits from wire rope

WICKWIRE ROPE



PRODUCT OF WICKWIRE SPENCER STEEL DIVISION
THE COLORADO FUEL AND IRON CORPORATION



2535

THE COLORADO FUEL AND IRON CORPORATION—Abilene (Tex.) • Denver • Houston • Odessa (Tex.) • Phoenix • Salt Lake City • Tulsa
PACIFIC COAST DIVISION—Los Angeles • Oakland • Portland • San Francisco • Seattle • Spokane
WICKWIRE SPENCER STEEL DIVISION—Boston • Buffalo • Chattanooga • Chicago • Detroit • Emden (Pa.) • New Orleans • New York • Philadelphia

James M. Robinson has been made assistant branch manager of the Springfield, Mass., sales branch, Crucible Steel Co. of America, Pittsburgh.

William F. O'Brien, eastern states sales representative for American Potash & Chemical Corp., Trona, Calif.,



W. F. O'Brien

has been named manager of lithium sales for the company. He will headquarter in the company's New York sales office.

The affiliated companies, American Steel Band Co. and Allegheny Steel Band Co., Carnegie, Pa., have named J. H. Bowman, Jr., as manager of sales.

Truman Jones, formerly sales manager of the special sales division, has been named general sales manager of



T. Jones

DeWalt Inc., Lancaster, Pa. Mr. Jones has been with DeWalt since 1946.

H. G. Cook has been named Detroit district manager for Graybar Electric Co., New York. He started with Graybar in 1920 and has spent his entire career at the firm's Grand Rapids office. He has been manager at Grand Rapids since 1939. Succeeding Mr. Cook as manager at Grand Rapids is W. T. Bronson, manager at Lansing since 1951.

A reorganization of the Ingersoll Products Division of Borg-Warner Corp., Chicago, into three separate manufacturing and sales operations and the election of J. H. Ingersoll as president and general manager of each, was announced, recently. In other appointments, it was stated that Robert F. Schutz is now manager of the Ingersoll Kalamazoo Division. Another unit, the Ingersoll Conditioned Air Division, also at Kalamazoo, will be under the direction of F. S. Gombert as manager. The third unit, in Chicago, will retain the name of Ingersoll Products Division. R. B. Crean will serve as vice president and assistant general manager of all three units.

The Barnes Drill Co., Rockford, Ill., has opened a new sales office in Detroit to serve that area and all of eastern Michigan. The office will be managed by C. O. Holland, assisted by Hill Nelson, Curt Kahler, Jack Gamrath, R. W. Losey and R. M. Palmer. It is located at 3419 S. Telegraph Rd., Dearborn.

W. C. Shea has been made manager of institutional sales, and T. J. Bromeling,



W. C. Shea



T. J. Bromeling

ing, manager of industrial sales, by the Colson Corp., Elyria, Ohio.

The appointment of Arthur H. Van Wormer as district sales manager in Cleveland has been announced by Vickers Inc., Detroit. He will be responsible for providing application engineering and service assistance to users of industrial and mobile oil-hydraulic products in the Cleveland area.

Harry C. Platt has been elected executive vice president of the Engineered Castings Division of American Brake Shoe Co., New York. He was formerly vice president in charge of production and has been with the company since 1942.

A series of promotions in top-management personnel has been announced by National Metal Edge Box Co., Philadelphia. Malcom P. Junkin, formerly vice president in charge of sales and development, has been made senior vice president. James Eiseman, former secretary-treasurer of the company, is now a vice president. And, Charles Paist, who was made director of sales in 1953, has been given full responsibility for all sales functions.

James L. Howarth Co., Inc., Birmingham, has been made Alabama sales representative for Allen-Bradley Co., Milwaukee.

Charles E. Dietzel has been named sales manager of the International Packings Corp., Bristol, N. H., a sub-



C. E. Dietzel

sidary of Graton & Knight Co., Worcester, Mass. He was formerly district manager for both companies in Arkansas, Kentucky, western Tennessee, and northern Louisiana and Mississippi.

United States Plywood Corp., New York, has named Lynn G. Goodnough, Jr., as sales manager, Kalistron Upholstery Department of its Flexible Materials Division. He was formerly associated with the Furniture Division of Goodall Fabrics, Inc.

Leo M. Brown has been made assistant to the director of sales and ad-




L. M. Brown

vertising of Gar Wood Industries, Inc., Wayne, Mich.

Kaiser Steel Corp., Oakland, Calif., has made Mark T. Anthony, assistant manager, central district sales. He had been assistant director, general planning.

Additional News of Your Suppliers will be found following the Industrial Development section

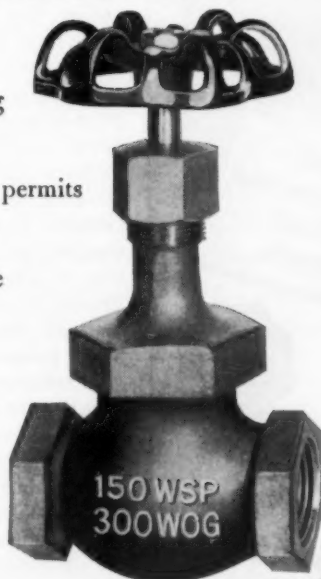


O-B VALVES

BUILT FOR SEVERE SERVICE

O-B Globe Valves are designed for long life. For example, instead of making stem and disc holder in a single piece, Ohio Brass makes them separately. This permits "free swivel" action, with reduced wear on disc and seat. You can get O-B Globe Valves with long-life disc construction from your Ohio Brass distributor.

Ohio Brass
MANSFIELD  OHIO, U.S.A.



4560-V



Complete Inventory—
Delivery from Stock



For More Information Circle No. 123
on Inquiry Card—Page 17

F.O.B.



FILOSOFY OF BUYING

How does Your Salesman rate with the PA?



APPROVED LIST...or NOT APPROVED?

THE Human Engineering Foundation, Summit, N.J., is a worthy organization crusading vigorously against the use of tobacco, liquor, coffee, tea and colas in the interest of "a new and better way of life . . . a clearer mind, better health, and more will power." One of its activities is scanning advertising for references that seem to encourage these vicious habits, and taking the offending advertiser to task. **PURCHASING's** advertisement in the December issue of *Industrial Marketing*, which included the cartoon reproduced herewith, came under the critical scrutiny of HEF, and we were properly chided. A tear sheet was returned to us, with a big arrow pointing to the salesman's cigar, and we were admonished: "Such controversial, irritating pictures as this should forever be avoided . . . Enlightenment and the establishment of high ideals should be the aim of all advertising."

Presumably, if our artist had chosen to portray the stogie in the lips of the salesman who ended up in the waste basket, instead of his successful competitor, the drawing

might have been more pleasing to the censor.

HEF plays no favorites. On the reverse side of the tear sheet was an advertisement of *The Saturday Evening Post*, with a drawing of an office Christmas party in full swing, and the censor had circled a cigar in the hands of the genial boss. But he missed the young lady lighting a cigarette in the lower right hand corner. A considerable number of glasses flourished by jovial celebrants also escaped his notice. To be sure, the contents of the glasses are not identified but from our experience with office parties, they would at least be suspect.

BY the way, the story of that party, as told in the text of the *SEP* advertisement, is rather interesting from the purchasing/sales angle. It seems that a vis-

PURCHASING

iting salesman had been invited by the PA's secretary, and he was delighted to attend—partly because Miss Robin was a cute dish on her own account, and more particularly because it gave him the "once in a lifetime opportunity" to meet everybody that influences purchases. So after talking with the foreman, the shipping clerk, and the sales manager, he left the party with a nice fat order that he couldn't get from Miss Robin's boss. Tsk! Tsk! To think that any salesman would so vulgarly mix business with pleasure!

OUR Purchasing Opinion survey for November, on "Personal Purchases for Company Employees", astonishes business commentator Elmer Roessner, who opines, in his nationally syndicated column "Business Today":

"Conventional retailers who have been blowing their valves and gaskets because discount houses are taking away their trade might save a little steam for industrial corporations. . . . With so many retailers declaring that discount selling is threatening their very existence, it is almost incredible that such a large percentage of manufacturers are fostering discount sales."

CREDIT an assist to Fred Frohn, P. A. for The Bristol Company, Waterbury, Conn., for the timely and practical catalog file suggestion presented on this month's editorial page. We are happy indeed to pass along ideas of this sort. Purchasing work involves a multiplicity of detail, and little ideas often add up to big savings of time and money, making for better buying. When that, in turn, is multiplied by thousands of purchasing departments, through the interchange of experience, the benefits are truly far reaching.

PLUS AND MINUS: When P. A. Harry Corden of the City of Waterbury, Conn., invited bids for demolishing seven abandoned buildings at the Golden Hills housing project, he received seven proposals ranging from \$2,200 to \$5,200 to do the job—and one additional offer to pay the city \$3 for the privilege of doing it.

NEWARK...

...offers more than just wire cloth

In addition to supplying wire cloth in bulk, a fast-growing division of our company specializes in the fabrication or assembly of parts made from wire cloth. Many companies who formerly fabricated their own mesh parts now avail themselves of this service. After all, we know wire cloth—we've been making it for more than 75 years. We have the facilities, the skilled help, and the experience necessary to turn out these parts accurately and in small lots or in production quantities to meet your production schedules.

Some of our recent jobs are illustrated above. Perhaps one or more of these comes close to something you're working on right now. Write us giving complete details and specifications. If desired our experienced engineers will work with yours in the design of the part so as to make the most effective and economical use of the wire cloth. We shall be happy to quote on your requirements.

NEWARK
for ACCURACY

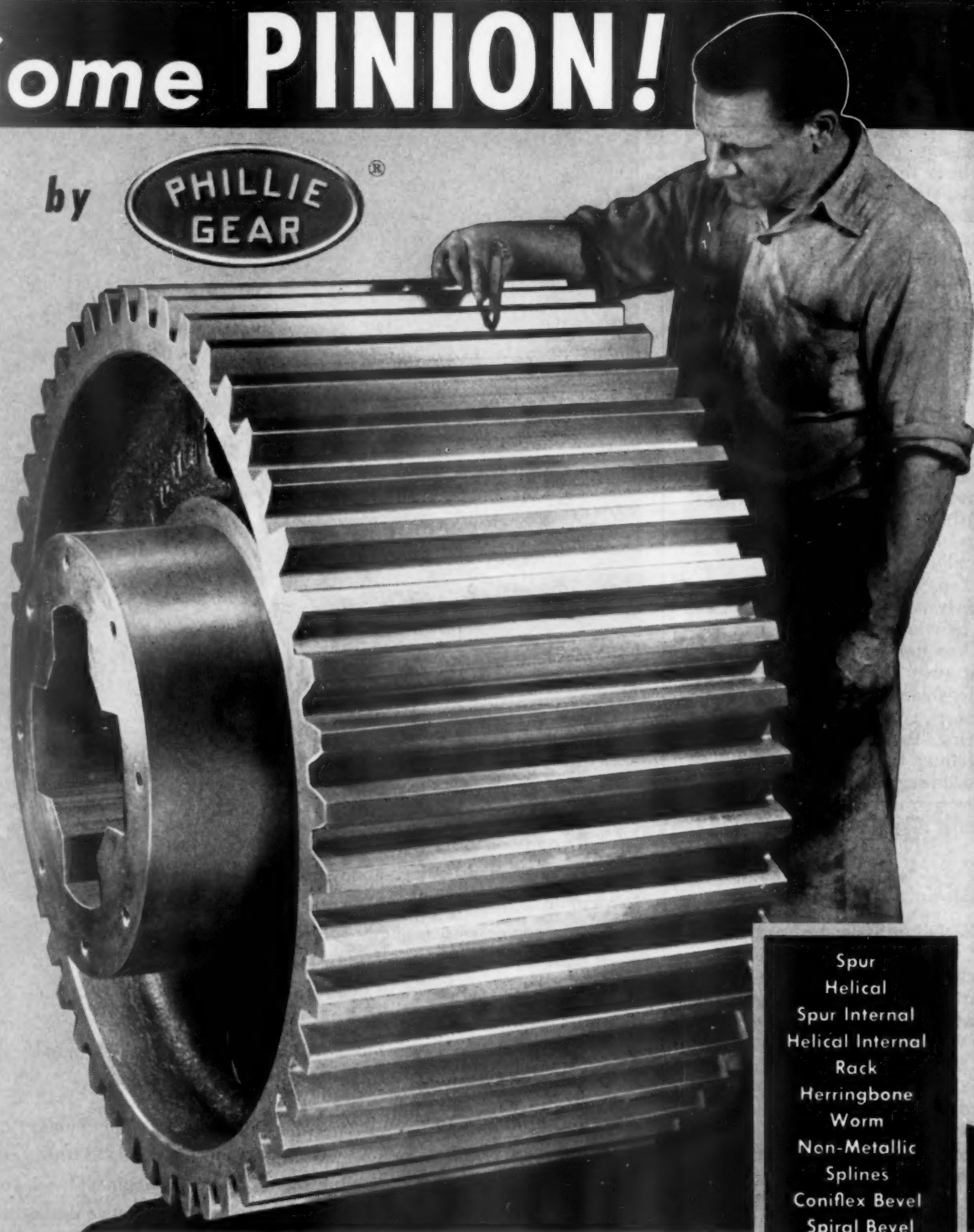
We can furnish wire cloth woven from all commercially used metals. Sizes range from 4 inches (space cloth) to 400 mesh.

Newark Wire Cloth COMPANY

351 VERONA AVENUE • NEWARK 4, NEW JERSEY
For More Information Circle No. 124 on Inquiry Card—Page 17

Some PINION!

by



Yes, it is "some Pinion" 54" diameter, 30" face width and weighing 4,600 lbs. . . . but it is just part of a day's work at "Phillie Gear." Here in one of the World's largest and most modernly equipped gear plants are all the latest machines, methods and craftsmen necessary to produce accurate gears of any type, size and quantity. When you require gears for any purpose, consult our Engineering Staff for courteous service and prompt action.

Spur
Helical
Spur Internal
Helical Internal
Rack
Herringbone
Worm
Non-Metallic
Splines
Coniflex Bevel
Spiral Bevel
Zerol
Hypoid
Intermittent
Sprockets
Contract machine
work

PHILADELPHIA GEAR WORKS, INC.

ERIE AVE. & G ST., PHILADELPHIA 34, PA.
NEW YORK • PITTSBURGH • CHICAGO • HOUSTON • LYNCHBURG, VA.
VIRGINIA GEAR & MACHINE CORP. • LYNCHBURG, VA.



Industrial Gears & Speed Reducers

LimiTorque Valve Controls

ESTABLISHED 1892

Clean Up The Catalog File

GOOD MANAGEMENT hews to the principle that obsolete tools should be taken off the production floor promptly and replaced by modern productive equipment, and that obsolete items should be removed from inventory as quickly as possible, conserving working space and capital and making for a more effective and profitable operation.

One of the complaints frequently heard from purchasing men is that designers specify parts and materials from outdated manuals, needlessly complicating the problems of procurement.

But how many purchasing agents are trying to do a job of locating materials and sources with obsolete information in their catalog files?

A New England reader recently commented on this situation as follows:

"Like everyone else, we keep adding catalogs to our files without ever taking out the old ones, except where we know that it is a direct replacement. It is the same reluctance that we feel about throwing away something around the house, that we think might come in handy sometime—but never does.

"The thought occurs to me that it might be a good thing for sales representatives, when calling on their customers, to question them regarding the catalog file. I think they should ask specifically to see what catalogs of theirs you have in your file—whether they are up to date or not. Or, of course, the question could come with equal propriety and effectiveness from the buyer; we're both interested. In this way, by spending an extra minute or two with each salesman who calls on you, catalog information will always be kept up to date.

"A concerted drive by both the purchasing agents and the salesmen should work out to mutual advantage. What do you think?

We think it's an excellent suggestion. Certainly it is a painless project, with a worth while purpose, and easily effected. Catalog information is one of the basic tools of purchasing. Keep it sharp.

Stuart F. Henrity

PRECISION SOLUTION

to combination loads!

Combinations of axial and radial loads on moving parts present a constantly recurring problem to the engineer and designer. And this problem is further multiplied by today's demand for lasting precision with minimum service and adjustment. Naturally, too, every designer strives for a basic simplicity in his product that means manufacturing economy.

A Job For Bearings

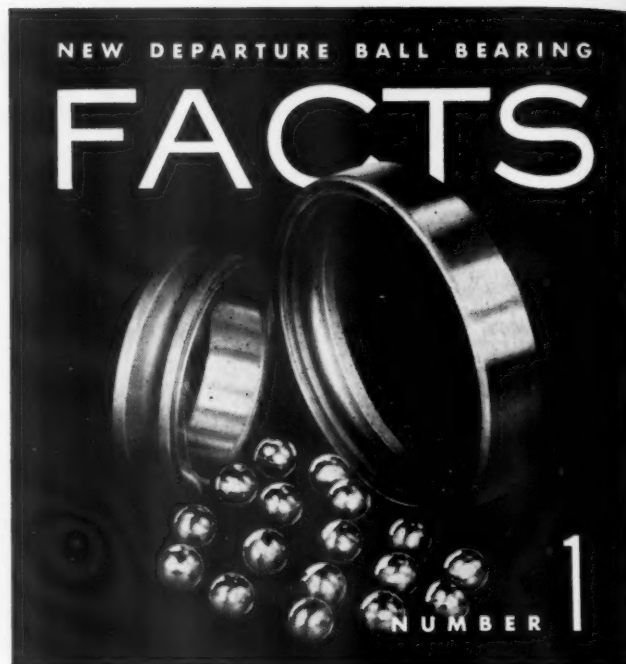
The work of holding moving parts in a predetermined position or location must fall on the bearings. How well they maintain the desired accuracy . . . and for how long . . . determines their value.

Because of certain inherent qualities, ball bearings offer outstanding advantages that can be found in no other type of bearing.

Basic Advantages Of The Ball

The ball is a unique shape. It rolls naturally in any direction. It has no weakest point. In combination with raceways of proper design, it can resist all loads.

Parts are held rigidly in position and, since wear is virtually nonexistent in properly enclosed ball bearings, no adjustment is required. Regardless of the angle at which load is applied, a uniform and readily calculable resistance is presented, and

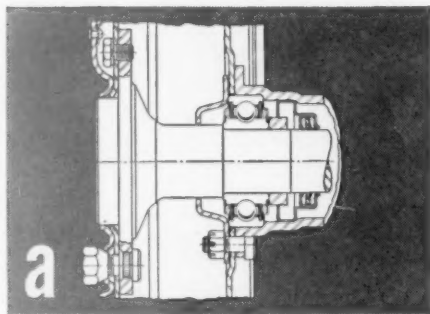


bearing life may be accurately predicted. Ball bearings thus may be readily selected to match the service expectancy of the machine in which they are used.

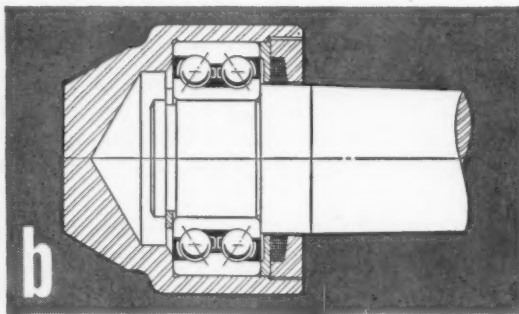
New Flexibility For Machines

Through this ability to resist all loads, machines using ball bearings can be operated in any position and at high or low speeds. One compact ball bearing can often replace an installation of two other bearings of different load-carrying abilities.

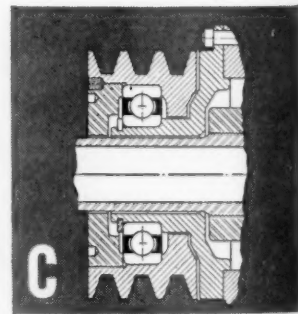
New Departure will welcome the opportunity to work with you on any bearing problem. Remember, there is no substitute for experience—and for more than 50 years New Departure has led in bearing design, testing and manufacture.



A. In this automobile rear wheel mounting the axle shaft is located against thrust in both directions by a single New Departure Sealed-for-Life bearing. Adjustments and need for relubrication are eliminated. Here are definite advantages over other types of anti-friction bearings.



B. In applications subject to heavy thrust, such as live centers, double row New Departure ball bearings give excellent performance. These bearings may be internally preloaded for maximum resistance to deflection under load. In this example, the center nose is ground after assembly.



C. In applications such as pulleys, New Departure radial, non-loading groove bearings may be used singly for radial, thrust or combined loads according to rated capacities. Thrust and radial capacities are approximately equal.

For complete information
send for Booklet BA-8



NEW DEPARTURE • DIVISION OF GENERAL MOTORS • BRISTOL, CONN.

For More Information Circle No 158 on Inquiry Card—Page 17

Highlights

This issue's important features
summarized for the busy reader



Important to every person in purchasing, as in every other field of work, is the subject of **Salary Incentives** and opportunities. And it is no less important to management, for the implications of this problem go beyond the simple questions of a fair reward for service and the inevitable comparisons with remuneration in other departments. There are, for example, the questions of whether incentives are such as to attract personnel of the caliber and qualifications to handle the purchasing responsibility effectively, and to what extent ethical conduct of procurement is affected. This month's poll of Purchasing Opinion (page 75) and the interpretive comment on page 77 constitute both a progress report and a guide to policy. Here is information you may wish to pass along to your management.

The article on **Purchasing Department Reports** (page 114) also has a direct bearing on the recognition and evaluation of the purchasing function. Traditionally, departmental reports are loaded with operating statistics that are actually of minor significance. Here are suggestions for reporting on the basis of performance in terms of the profit accomplishment that is at the root of all commercial effort.

Inventory Control can be put on a scientific basis. A great deal of attention is properly given to the key items making up the major volume and value. But how much individual judgment and decision is warranted on the multiplicity of items of lesser value—the 75% of items representing 25% of inventory, that must still be kept in adequate supply and reasonable balance without undue expenditure of administrative effort? The article on page 92 explains a mathematical method of projection that provides positive control in terms of usage, cost and service. Don't be scared off by the formulae and charts. In the long run they will help you do a more effective job, more easily and economically.



Purchasing Policies are fundamental to every procurement operation. They are most effective as an administrative tool when they are clearly stated in written

form and communicated to all parties concerned. On page 71 is a complete statement of policy as compiled and issued by a successful purchasing department. You will find it useful, not only for the policies themselves, but as a guide in the formulation of your own policy statement.

Advertising is quite generally recognized among purchasing men as a convenient source of information on products and sources. But too frequently it is carelessly discounted as a promotional device. All business has a basic concern with advertising because it has been the means of making mass production possible through mass demand, and thus reducing costs and establishing orderly channels of distribution. In a discussion prepared especially for purchasing people, an advertising executive outlines the objectives and accomplishments of the advertising function. Turn to page 109.

Teamwork between **Buyers and Engineers** is a topic that has caused endless argument and controversy over prerogatives and qualifications in the selection of industrial materials and equipment. These personal considerations have sometimes obscured the fact that both specialized functions have much to contribute in helping each other toward greater efficiency in reaching the common goal of profitable company operation. On page 69, a man who has been on both sides of the fence draws upon his experience to show how both can do a better job by thinking in terms of "We".



Many of the headaches in purchasing **Printed Forms** can be eliminated by setting up requirements on a yearly basis and taking full advantage of the supplier's facilities for production scheduling and stocking of supplies. See article on page 79.

Don't overlook these regular monthly departments, compiled for your information: the Washington Report (page 13); New Catalogs (page 17); New Equipment and Products (page 128); News of Your Suppliers (page 22), of Association Activities (page 184), and of Men in Purchasing (page 248); Keeping up to date on such developments makes for better buying.

COMING—IN NEXT MONTH'S ISSUE

Getting the Most out of Interviews—Investment Castings
Flexible Packaging—Using Directories for Source Information



What's New in Steel Service

Again in 1955, as in every year since 1842, Ryerson is setting the steel-service pace. Many advances in our ability to serve you have been made in recent months—many more are immediately ahead. Briefly, here is what you can expect:

EXPANDED STOCKS—Amazing new leaded alloys in three carbon ranges—carbon steel plates produced to an “easy-welding and forming” specification—304L and 316L stainless plates and sheets for superior welding characteristics—type 430 stainless sheets for those who want an alternate to higher priced 18-8 stainless. These are a few recent additions and further stock expansion is already under way.

NEW QUALITY SAFEGUARDS—Steel you order from Ryerson now protected by a whole new set

of quality control standards—tighter than any thought possible before. As evidence of uniform high quality we can furnish a certificate of analysis or a mechanical properties report for every pound of steel we ship.

STEPPED-UP SERVICE—On 92 to 98% of the regular orders we receive, steel is cut and shipped the same or following day. With two new plants getting into operation, and with facilities enlarged and modernized from coast to coast, we'll do even better in the weeks ahead.

So here's our steel-service pledge to you—an even wider selection of steels, dependable high quality, delivery where you want it—when you want it—now and throughout 1955.

RYERSON STEEL

In stock: Bars, structurals, plates, sheets, tubing, alloys, stainless, reinforcing, machinery & tools, etc.

JOSEPH T. RYERSON & SON, INC. PLANTS AT: NEW YORK • BOSTON • PHILADELPHIA • CHARLOTTE, N. C. • CINCINNATI • CLEVELAND
DETROIT • PITTSBURGH • BUFFALO • CHICAGO • MILWAUKEE • ST. LOUIS • LOS ANGELES • SAN FRANCISCO • SPOKANE • SEATTLE

For More Information Circle No. 159 on Inquiry Card—Page 17

LET'S GET TOGETHER



After all, the purchasing agent and the engineer work for the same company — they have the same end goal — and each has something to contribute

By Nelson J. Gibbins

Methods and Purchasing Engineer, Motor Wheel Corporation, Lansing, Mich.

"In preparing this talk," Nels Gibbins told the recent National Conference on Standards, "I donned one of those fore-and-aft caps. One forepiece was labeled 'Purchasing' and the other 'Engineering'. When I say 'you' I am referring to my engineering profession and my purchasing fraternity. As I jumped back and forth over the fence, twirling my cap properly, I made a remarkable discovery: It comes out the same if I say 'we'."

It's a fortunate and bona fide case of double identity. Mr. Gibbins joined Motor Wheel Corp. as an engineer, spent 9 years as Chief Inspector, 11 years as a Purchasing Agent, and has recently been named Methods and Purchasing Engineer.

THE engineer and the purchasing agent each has what he considers inalienable rights, prerogatives, preserves. They must be kept inviolate at all costs, according to him.

Most of the time he is so busy jealously patrolling what he sincerely believes to be his sacred boundaries that he wastes a lot of energy hunting poachers instead of game. The cure for this malady—and it is necessary to effect a cure if we are to collaborate on a standardization program—is to get over on the other side of the fence and look around.

You will find the pasture is of the same hue. You will find the sun shining equally on both sides. You will even find the fence disappearing slowly. You will find that our major aims are one and the same. We are both trying to get the most for our company's money—not the cheapest, but the best.

We differ in our technique. This technique is based on past experience which undoubtedly has been too specialized. A little visiting back and forth will loosen up those preconceived ideas and unfounded prejudices. It will broaden the outlook and pave the way for cooperative and constructive action.

When the engineer and the P.A.

get this harmonious relationship on a paying basis it can easily spread to manufacturing, sales, and inspection. When all this is accomplished you will find you are behaving like an executive. You may feel you have all the attributes of an executive, but you will be hard put to prove it until you start behaving like one. Standardization requires the overall executive type approach. It must rise above departmental thinking.

Keep Our Individuality

Let's get chummy, but not confused—or we'll have the P.A. calling himself an Engineer of Acquisition and the engineer a Procurer of Values. We can understand each other without loss of prestige, or respect, or *individuality*. Each of us has prejudices and blind spots. But together we have a combined strength that will bring our company what it has hoped it was getting right along.

Cooperation is a good safe basis to start with. Cooperation should be effortless, natural, and without reservation. The neutralizer is understanding of what each has to contribute. We can't all bring cake to this pot-luck dinner. If you are always trying to increase your contribution, you will find the other fellow striving to match you.

The drawing, and the specifications on that drawing, are the language of the engineer. The P.A. buys from this script. He is expected to make a pitch that will attract vendors from far and wide. He is not able to move on like the "carny" barker. He hopes to be doing business from the same stand for a long, long time. His story has to stick.

You can underdo the specifications, but you can, and generally do, overdo them. You fill in the background to the point where the foreground goes underground. This generally results in the P.A. doing a half-hearted job. He isn't going to get himself euchered into a position where he has to keep saying, "I don't know, but I will try to find out and let you know."

He is a pretty busy boy, so he will concentrate his efforts on the things he does understand. He puts the puzzles aside, for the time being at least. There will be no christening of your brain child, for it will die of malnutrition practically a-borning.

In writing specifications you are pin pointing. The more specs you write, the narrower you make the field. The P.A. is a student of the art of compromising. He knows that two vendors can get the same results by different methods. He also knows the vendor is applying his experience to a job that is not too different from what he has been doing. He knows the vendor has some ideas—valuable ideas based on experience—that may simplify our product and save money. The P.A. needs some elbow room to work these out. He will be back to you for your reaction and approval, but he needs leeway to maneuver.

Make sure you cover the "what" but not the "how". Cover it but don't bury it. If your P.A. asks for further clarification, take care of him quickly. He understands you better than any vendor does. So you are furthering the desired end by knocking off two birds with the same answer. Both before and after the order is placed the P.A. will see a lot more of the vendor than you will. So, give with the conversation, make with the chatter, when you turn your proposition over to the P.A.

A Case History

A few years ago when an automobile hub cap was just that, and not a wheel cover, it was quite a trick to hold the cap in place firmly and without a rattle. Our engineering department developed a clever

clip made of spring steel, with a fancy shape, which did the job very well. Purchasing was fortunate in finding two sources near at hand; production samples were OK'd and we were in business.

Everything went well for about 90 days, when a feud broke out between engineering and inspection. Purchasing was drawn in quickly, for both vendors came in with a request for a price increase of 25¢ per thousand. Figuring 30,000 wheels a day, at five clips a wheel, brought this additional daily cost up where it would show up as a sizeable item even on the sales manager's expense account. Purchasing worked on engineering and inspection separately and together. What we wanted was our two bits back.

Inspection claimed the specs were too close. We had only a 3-point spread in Rockwell hardness. They had charts to prove that 6 points was satisfactory. This would cut down our rejections to practically zero, and we would get our two bits back.

Engineering said both sources had made thousands of satisfactory clips and they could just as well make millions. Further, inspection's method of trying a hub cap six or eight times was not equivalent to the abuse a customer would give the cap in a couple of years.

All this was leading nowhere, so we decided to visit the plants of the two vendors. At our first contact we found the answer to our problems. The vendor's chance remark, "The heat treating procedure you have set up is a tricky one for us to follow" did it. We took a good look at the print. Right there was a neat little box with detailed procedure of heat temperatures and quench, and the media to be used! We had passed it up as a bit of chatter between the two engineering departments; but not so the boys who did the work.

We rushed home, pointed out this cryptogram to our engineers and asked "Why?" "Oh that," blithely said the engineer—"that was put on to help the vendor. We worked it all out with the metallurgical department.

"Do you expect the vendor to follow it explicitly?" we asked. "Heck, no", was the answer, "we just want the hardness we have specified and we stand ready to open the spread a couple of points if the vendor asks for it."

We got the "helpful suggestion" scrubbed off the print, the hardness spread widened, and our two bits back.

This illustrates every point I have brought up. I think the very heart of a successful collaboration in a standardization program lies right here. Let me turn my cap around for a moment and say that the P.A. must be ready, willing and able to give in this program. I say that before you say it. But my project is to tell you, Mr. Engineer, what the P.A. wants from you.

Not Vaccinated Against Salesmen

He wants from you an understanding and acceptance of what he can contribute to the program. He wants you to realize that you have not been vaccinated against high powered salesmen. He wants from you an awareness and an understanding of the human relationships that enter into business dealings.

He wants you to believe that his deficiency in figuring stresses and strengths of materials is compensated for by a proficiency in cost analysis and vendor evaluation. He wants from you an understanding that a design, a package, or a procedure that is right today may need shaking up tomorrow. While it was right as rain yesterday, time has marched on and a smart vendor has come up with a new wrinkle that you can consider without loss of pride or prestige. He also wants you to rescue him from a blind alley now and then, for he is a sucker for that mouse trap play. He will often plunge in blindly to grab a quick nickel and miss the long term dollar you have planned.

If we get in the mood, lay out our wares, harmonize, fit our hands together, the mechanics of that part of a standardization program that rightfully belongs to the engineering-purchasing combine will follow as the light of day follows the dawn.

This morning I heard a paper on surface finish standards. As a P.A., had I read that paper in a magazine, I wouldn't have got beyond the middle of it. But the discussion which followed was packed with gems. I understand. I'm ready to procure the equipment that will properly do the specified job. Therein lies the text of my presentation.

Of course, it is not that simple. All will not be beer and skittles once this understanding is reached. That is when the work begins.

We have made much of this picture, because we believe that without a complete knowledge, understanding and use of our combined contributions, we will be working at a standardization program, not with it.

A Statement of Purchasing Policy



The Procurement Department of Convair (Consolidated Vultee Aircraft Corporation, San Diego, Cal.) a division of General Dynamics Corporation, has prepared a unique and attractive 20-page booklet entitled "Materiel Procurement". It sets forth, concisely yet comprehensively, the policies governing the procurement activities of the organization, for the information of all concerned.

Says H. N. May, General Purchasing Agent: "Over a period of years, we have experienced here at Convair the need for a compact statement of procurement policies. The policies have existed, of course, and have been implemented through approved procedures; however, the compact statement has not been an immediately available package. We have long recognized the value of identifying pertinent procurement policies and practices to all our customers, to our active suppliers, and to several groups of Company personnel."

Prompted by this need, the entire purchasing staff was called into conference on the project. Following a generally unproductive survey of available material, the working committee met daily in the office of the General Purchasing Agent, over a period of several weeks, to propose, modify, condense, and select the statements which comprise the content of the booklet. Final copy was approved by Division and Corporate Management. The foreword, signed by Convair's Manager, establishes the purpose of the booklet and gives it authority.

Complete text of the booklet (except for a section on applicable statutes, as noted) is presented herewith, by permission—both for its informative value, and as an example of an effective purchasing tool.

FOREWORD

Herein are policies which control Procurement of Materiel by Convair, San Diego.

The purpose is stated below:

1. to provide basic guides for procurement personnel in their relations with suppliers, customers, and within Convair at San Diego;
2. to provide our customers and suppliers with authoritative information;
3. to inform employees of other departments.

Policies are implemented in both specific meaning and intent through the daily actions of people. Desired results are support of quality production at competitive level of costs, with continuity of supply and sound business relationships.

B. Coggan, Manager
Convair, San Diego

ORGANIZATION

Procurement is an integral part of the Material Department along with Material Control, Receiving Stores, Traffic, Shipping and Salvage functions. The

Department is organized under a single administrative office and is accorded full recognition by General Management in policy matters.

ETHICS

The conduct of procurement personnel is based upon the principles of honesty, fairness, and personal integrity.

Procurement Department activities are confined to requirements for Convair's operation.

Personal financial interest or benefit of any sort accruing from procurement authority is expressly forbidden by Convair policy.

Good business relationships with suppliers are vital and require mutual courtesy, understanding, and fair play. No contact or contract has value without benefit or satisfaction to both parties.

RESPONSIBILITIES

Only specific procurement personnel are authorized to make purchasing commitments. Insurance, real estate and utilities are treated separately from

production materials, operating requirements, and other services.

Liaison is necessary between suppliers, engineering, quality control and using departments both before and after procurement commitments have been made. Convair personnel making such liaison contacts have no authority to commit on cost or delivery factors except as contacted by authorized procurement personnel in accordance with established policy. Coordinated company action is necessary to avoid confusion in contractual relations with suppliers.

PROCUREMENT HOURS

Office hours for procurement personnel are 7:30 a.m. to 4:30 p.m. Monday through Friday.

Suppliers' representatives are urged to plan visits between 9:00 a.m. and 3:00 p.m. on Tuesday, Wednesday and Thursday, and at any other time by arrangement. As the time of all affected parties must be conserved, advance arrangement of appointments is suggested.

BUDGETARY CONTROL

Budgetary control is an integral part of management. The Material Department is concerned particularly with three types:

1. program material procurement cost control;
2. operating cost control;
3. personnel cost control.

Convair's proposals to its customers include Material Department projections of program material procurement, operating and personnel costs. Performance to realistic projections helps to ensure the competitive quality of operations and the continuity of both personnel employment and business with competitive suppliers.

INVENTORY CONTROL

Procurement action implements inventory control policies to provide for:

- (a) adequately balanced inventories of production materials and of maintenance, repair and operating supplies;
- (b) adequate inventory and property accountability, including records of orders, receipts, issues, and prices on all materials.

Inventory levels are maintained primarily in line with current requirements. Full or partial contract requirements are committed dependent upon the nature of the item, procurement limitations relative to continuity of supply and good business practices. Policy objectives are minimum inventory investment in advance of need, and lead time commitment control.

Basic policy prohibits any form of speculative purchase. Only by special Management sanction can procurement be authorized in excess of known requirements for contracted production.

TRAFFIC

The Traffic function of the Material Department directs and controls all aspects of transportation of inbound and outbound consignments.

Transportation is purchased at the lowest possible cost commensurate with requirements.

Close liaison is effected with Management and other companies in matters of traffic and transportation policy affecting the industry generally. Participating memberships are maintained in industry associations and national organizations, including the Traffic Committees of The Aircraft Industries Association, The National Industrial Traffic League, The California Manufacturers' Association, and the Transportation Committee of the San Diego Chamber of Commerce.

Convair is represented in hearing conducted by Governmental Agencies on rates, routing, classifications, and other aspects of transportation.

TRANSIT CONTROL

Materials are generally procured on an "f.o.b. point of origin" basis which permits selection of routings.

Direct shipments to Convair's customers or suppliers are requested whenever such action is beneficial to the procurement involved.

It is policy to use common carriers. Such carriers are regulated by governmental agencies and apply rates based on published tariffs. Equitable distribution in use of carriers ensures good service and prompt handling of claims.

Services of cooperative freight-handling associations are utilized to secure cost advantages by the "pooling" of otherwise separate shipments.

Transportation costs are controlled in part through proper description in accordance with Interstate Commerce Commission classifications. Freight bills are audited for discrepancies and loss and damage claims are processed.

PLANNING FOR PROCUREMENT

Planning for procurement is advance coordinated action to ensure economic procurement to schedule.

The Material Department issues a Commodity Lead Time List quarterly for use by planning functions. The list indicates by commodity category the time required from date of procurement authorization to end-use availability. It guides the chronological development and release of materiel requirements.

Planning provision for this necessary procurement time, as well as for other prior or subsequent schedule factors—design, planning, tooling, fabrication, and the like—allows a favorable balance of company action.

Occasional emergency departure from this planned action requires vigorous support, both internally and at sources of supply, but reduces procurement efficiency, disrupts suppliers' schedules, increases procurement costs and creates new emergencies.

SELECTION OF SOURCES

Requests for Quotations are sent only to qualified sources. Factors evaluated in determining qualified sources include:

- capacity to produce;
- quality of product;
- reliability of delivery commitments;
- financial stability;
- competitive pricing policy;
- geographical location.

Field surveys by technical personnel implement evaluation of facilities.

Sources for procurement under Government Contracts are subject to approval by the cognizant Contracting Officer.

MILITARY SECURITY REQUIREMENTS

The safeguarding of information affecting National Security is a direct responsibility of all. Government Regulations and Directives define what must be safeguarded and the method of accomplishment. Potential suppliers of an item classified for security reasons must qualify by obtaining a Government Facility Clearance.

If a potential supplier is not in possession of a Government Facility Clearance, or his clearance is inadequate to cover the classification of the work under consideration, assistance will be extended by sponsorship of a request for adequate facility clearance.

BID AND AWARD CONTROL

Good business practice in the procurement of materiel dictates that quotation requests to qualified suppliers develop competitive bids (three or more).

Convair Procurement Policy emphasizes the importance of competitive bidding. This policy is implemented by a bid control system effective from date of quotation requests to award of procurement contracts.

Use of the Standard Quotation Request Form by bidders enables uniform presentation and comparative evaluation.

Prices submitted in bid proposals are not disclosed to other suppliers.

Assurance of proper supply may require that more than one source be utilized and, if necessary, developed for particular items.

CASH DISCOUNTS

Cash discounts are of mutual advantage to Convair and its suppliers, and are requested in accordance with Accounting preference.

Cash discount terms are always considered as a factor in cost comparisons.

SUPPLIERS' MATERIAL REQUIREMENTS

Any procurement for which Convair has provisioned inventory may involve sale of that inventory to the supplier of the finished article. **Initial material** requirements will be sold at cost, freight prepaid, replacement material, if available, is sold at cost plus handling charge, freight collect.

Material will be consigned only in those cases wherein purchase by the supplier would result in undue hardship.

TOOLING

Existing tools for the production of an item and master gages, checking fixtures, and layouts may be furnished to a supplier.

Title, physical accountability, responsibility for maintenance, and control of changes for tooling are defined by the Procurement Contract.

CONTRACTING FOR PROCUREMENT

The bulk of materiel is procured under the standard Purchase Order form of contract. Due to the number of suppliers and volume of business, it is obviously impractical to do otherwise.

The terms and conditions of the standard Purchase Order include the mandatory clauses required to be inserted in procurement contracts issued under Prime Contracts with the Government. To provide ready reference to the statutes forming the major controls on materiel procurement under Government Prime Contracts, there is listed below a brief summary of the statutes most frequently encountered.

Where the nature of the procurement is such that the standard Purchase Order terms and conditions cannot be adopted readily, a contract is negotiated with the supplier to set forth the intent and understandings of the parties. The type of contract negotiated is dependent upon the nature of the task involved. Section III, part 4, of the Armed Services Procurement Regulation is used as a guide in determining the type of contract most applicable to a particular situation.

Procurement Contracts are issued in writing to suppliers for their acknowledgment and return. Where urgency dictates, more expedient means are used with the express understanding that a definitive contract will be executed as quickly as negotiations can be completed.

Over-riding agreements with suppliers, whereby the standard Purchase Order terms and conditions are supplanted either wholly or partially, are discouraged. In the interest of good contract administration, the complete terms and conditions covering a transaction are included in each contract document, thus eliminating the need for reference to extrinsic agreements.

It is policy to be certain that suppliers understand the terms and conditions on which purchases are

made. Against the background of such mutual understanding, it is reasonable to insist that contracts be accomplished to the letter, by both parties.

At this point in the booklet there is a condensed summary of the major statutes affecting procurement. The substance of each law is given, without legal interpretation. The following statutes are covered:

- Fair Labor Standards Act
- Defense Production Act
- Buy American Act
- Walsh-Healy Act
- Vinson-Trammell Act
- Public Law 179 (82nd Con.)
- Public Law 245 (82nd Con.)
- Sherman Anti-Trust Act
- Renegotiation Act
- Fed. Trade Comm. Act
- Clayton Act
- Robinson-Patman Act
- Davis-Bacon Act
- Copeland Act
- Public Law 886 (76th Con.)
- Public Law 234 (77th Con.)
- Public Law 844 (77th Con.)
- Espionage Act
- Eight-Hour Law
- Armed Services Procurement Act

TERM PURCHASE ORDERS

Term Purchase Orders are used to reduce clerical activity wherever warranted by the volume of repetitive business. Such orders may be issued on an annual, semi-annual, or quarterly basis, depending on the nature of product involved.

Typical items covered by Term Orders include: dimensional lumber, plywood, preventive maintenance contracts, laundry and linen service, safety glasses, guard and firemen uniforms.

INSPECTION

The Procurement Contract defines the quality and performance requirements of purchased materiel. The supplier is responsible for the adequacy of his quality control system.

Procured materiel is subject to inspection upon receipt and also when applied to the use for which it was purchased. Disposition of rejected materiel is made in accordance with provisions of the Procurement Contract as negotiated with the supplier.

A record is maintained of all rejections. The success of suppliers in meeting quality and performance requirements is an important factor in evaluation of sources.

ADVANCE AND OVERSHIPMENTS

Delivery is required in accordance with the contract delivery schedules. The option may be exercised either to retain advance receipts or to return them to the seller at the seller's risk and expense.

Overshipments are returned to the supplier, charges collect, except in approved instances where quantity tolerances are a practical consideration.

FOLLOW-UP AND FIELD EXPEDITING

Each supplier obligates himself to make shipments of material in accordance with contract schedules.

Development of factors which may endanger accomplishment of a supplier's shipment promise must be called to Convair's attention without delay. In such instances it is Convair's policy to offer all reasonable assistance necessary to stabilize contract performance. Routine follow-up of all Procurement Contracts is employed to reveal unanticipated problems affecting suppliers' shipment commitments.

Convair's Field Expediting personnel, located strategically throughout the country, assist in solution of extraordinary procurement problems. All expediting assignments emanate from procurement personnel and are followed to conclusion as a responsibility of Field Expediting.

TERMINATION CLAIMS

Fast and fair settlement of claims resulting from the termination of Procurement Contracts is of mutual benefit to Convair and its suppliers. Prompt submission of settlement proposals (within 30 days from date of termination) by suppliers will assure an early settlement of the claim. This in turn allows Convair sufficient time to process its claim within the 60 day period suggested by the Government.

Where applicable, the provisions of Section 8 of the Armed Services Procurement Regulation govern the manner of processing termination claims. In carrying out these provisions, the interests of the Government and the supplier are recognized and protected.

DISPOSAL OF MATERIEL

Recovery of maximum value is expected from Convair materiel declared surplus or obsolete to requirements. Disposition of such materiel is a responsibility of Procurement, and is accomplished by sales to original sources, plants in the Division, and other users.

Scrap is disposed of by the Salvage Section with best possible recovery accomplished by reclamation, sorting, sales to employees, and outside sales through competitive bidding.

PROFESSIONAL ORGANIZATIONS

The publications and meetings of professional organizations stimulate improvement effort. Therefore, it is a policy to participate actively. Of particular interest are selected organizations which educate through the exchange of practices, unite the industry on common problems, and provide mutually beneficial association of customers and suppliers.

Procurement personnel are encouraged individually to be members of professional and technical groups which foster self-improvement, product or application knowledge, and increased performance effectiveness.



PRICE TAGS FOR PURCHASING

COMPENSATION is typically and traditionally regarded as a very personal matter. That situation works two ways. It's everybody's business, and at the same time it's nobody else's business, especially in technical or semi-professional fields, where there is no collective bargaining or "prevailing rate" as a basis. It's a matter of intimate concern to the individual, touching every man and woman in purchasing work, as in other fields. On the other hand, from its very personal nature, it is generally held confidential. Specific information is hard to get, except in the goldfish bowl of governmental buying, on a sufficiently broad scale to be regarded as truly representative or to warrant any statistical generalizations.

Purchasing is a particularly difficult field in which to generalize because of the many variables involved—variations in the type and economic fortunes of many different industries; variations in the size of companies, and the corresponding range of dollar volume for which the purchasing agent is responsible; variations in general standards of income and compensation in different geographical areas; and variations in the scope of responsibility delegated to purchasing departments, even within the same industry or among companies of comparable size.

Add to this the difficulty, not yet resolved, of measuring purchasing performance against any adequate standard, and you have a problem of major proportions.

Yet quite aside from the personal implications, the subject of financial rewards is one of genuine significance to all management desirous of having competent, efficient purchasing service and enjoying the profit advantages that accrue from such performance. There are at least three basic questions to be answered:

Three Important Questions

Are the financial incentives at a level to establish purchasing as a truly coordinate function in management? In practical business administration, it is recognized that salary ranges and opportunities are a tacit measure of the value that management places upon the job to be done, as well as of the competence with which it is done. Thus it is a relative, as well as a personal, factor. It is a potent and tangible element in setting up the complexion and character of an organization, those intangibles that largely determine the stature and "weight" that will be given to purchasing considerations in company policies and decisions, and hence in its operations.

Are they sufficiently high to attract and to hold personnel of the caliber, qualifications, and training commensurate with the responsibilities of the job, and to encourage purchasing as a specialized career in management? This also is a phase of the subject no less important to management than to the purchasing profession and the individuals in it.

Are they high enough to insure completely ethical performance—lifting the job above the temptations and opportunities for sharp practice that are inherent at all levels of purchasing, in decisions of patronage and the commitment of large sums of company funds? That these temptations and opportunities exist need not be argued. This is not to condone ethical shortcomings of the individual in any degree—and it should be pointed out that ethical standards in purchasing are generally high. However, the question cannot be ignored, for one of the outstanding developments in management thinking in recent years has been the growing recognition of its social responsibilities.

The questions asked in this month's poll of Purchasing Opinion (reported on the immediately preceding pages) are directed toward these basic aspects of the total picture of purchasing compensation, rather than to dollars and cents analysis. The answers received warrant a more extended review and interpretation than is offered by mere tabulation.

The Trend Is Up

The trend in purchasing compensation is probably more accurately reflected in the volunteered comments of the respondents than in the statistical summary. It is summed up in the statement, "We have come a long way, but we still have a long way to go."

"This questionnaire is loaded," writes another realistic reader.

"Everyone thinks he or she is indispensable and will be glad to cry on your shoulder. Ask any group if they are underpaid, and bring a towel for the tears."

Granted. Surveys of opinion must always be carefully evaluated. But many of the answers are illuminating from the standpoint of fact as well as opinion. Here is the testimony of another respondent in response to the first query:

"In our organization, purchasing salaries are being upgraded. Actually, responsibility is a basis for setting salaries, and our purchasing people are getting more responsibility—hence more salary."

That experience and observation goes right to the crux of the matter. The progression is simple and logical. The opportunity for constructive service exists in purchasing—competent and constructive performance earns the confidence of management, expressed in more complete delegation of responsibility (broadly defined as "recognition")—increased responsibility earns greater rewards. Put into terms of a practical working program, that poses a dual problem of education—at the individual and the group level—to make management more aware of the true potential and significance of the purchasing function, specifically in respect to the particular company. Then, if the performance lives up to the promise, the tangible reward will follow, but the foundation must first be laid.

Management Recognition

The survey indicates that this awareness on the part of management, which has been aptly termed "purchasing literacy", is still on the low side. Yet it is a matter of common knowledge that tremendous strides have been made in recent years. The notable trend toward inclusion of purchasing courses in colleges of business administration, which both reflect and lead the thinking and practice of progressive management, is impressive evidence of this and promises accelerated recognition in the years ahead. As a matter of fact, if we discount the "loaded" self-interest of the opinions expressed in the survey, the advance may well be substantially greater than the actual figures indicate.

But there is one very significant point to be noted in the replies. If we interpret the replies as showing that management is well on the way toward practical recognition of purchasing in comparison

with its rating of other personnel, and consistent with the training and experience required, there is still a great disparity in the replies to the third part of Question 1. Apparently we have made but a feeble start in convincing management of the profit-making potential of purchasing.

The function of purchasing as a contributor to company profits is foremost in all purchasing effort today. It is the theme song of every progressive purchasing department. But apparently that theme song has, to a great extent, fallen on deaf ears. Our critical and continuous search for value in the things we buy is but faintly reflected in management's comparable evaluation of the purchasing function.

It may well be, then, that here is the point upon which major emphasis must be placed in the educational aims of our Association, publication, and individual activities as purchasing men. Interestingly, another article in this issue stresses this very point. Writing on the subject of purchasing department reports, upon which the evaluation of purchasing activities may largely depend, Mr. Spivack decries the common practice of playing up routine statistical data, and urges that purchasing performance be presented in terms of its profit contributions.

"Purchasing personnel are themselves largely responsible," writes another survey respondent. "A large proportion are not themselves sufficiently aware of the purchasing potential, and there is not enough effort to bring such to the attention of top management through reports, etc."

And perhaps purchasing has been remiss, or over-complacent on another score. Perhaps we were too optimistic in phrasing the first question, with its reference to "other" professional and executive personnel. Leaders in purchasing have consistently and frankly urged their colleagues to appraise themselves, to ask: Are we really professional? Are we really executives? If the answer is in the negative, we must go back to the starting point of self improvement to warrant the recognition and status desired.

"Purchasing agents who act like top management have the opportunity of achieving the management goal," is the comment on one reply.

Incentive Plans

If we accept the premise that purchasing compensation should be somehow related to value or service

rendered—and this approach is indicated in the majority of the replies—there is obvious merit in incentive plans that are tied in with results. Incentive compensation, which serves both as a spur and a reward, is rapidly gaining favor in management policies. It is encouraging to note that more than half the companies represented in this study have salary incentive or bonus plans in which purchasing personnel participate.

Upon what basis should incentives be calculated? The well known difficulty of arriving at any objective measurement of purchasing efficiency makes this a hard question to answer. Two out of every three companies reporting, where such bonuses are paid, use over-all company earnings as the base. Two out of five purchasing agents agree that this is the most practicable and effective plan. But nearly as many purchasing agents express preference for an incentive plan based on cost savings effected by the purchasing department, and one out of every five suggests other specific departmental ratios.

It is probable that a deeper philosophy than that of convenience has prompted the preponderance of opinion in favor of over-all company earnings. It is consistent with purchasing's claim as a profit making function, and with purchasing agents' claims to executive status. Even more significantly, it is consistent with the concept of teamwork in management. Here are three comments on this point:

One says: "Compensation of purchasing personnel should be on the same basis as other administrative branches. Cost saving through purchasing is only one phase of the picture, and purchasing costs are partially at the mercy of sales volume, plant operations, etc."

Another says: "In the past, too much emphasis has been placed on the non-recognition of individual departments, which causes breaches to occur in an organization. The sooner all departments consider themselves part of one team working for a common goal, the more recognition will come to all."

The third points out a practical danger: "I believe that over-all company earnings constitute the only effective and just way to base an incentive. There are too many factors involved, such as quality and quantity, which would influence some agents to sacrifice quality and over-buy to get good prices."

(Please turn to page 314)

Buying Printed Forms on a Yearly Basis

By K. W. Merritt, Purchasing Agent, Mercantile Stores Co., New York

A PROGRAM for buying, stocking and shipping office forms on an annual basis, planned in co-operation with our printer, has brought us many savings and increased efficiency.

We now use close to 10,000,000 individual forms, in about 200 general classifications, each year in our 55 stores in all parts of the country. Until we established a new system

of handling these forms, these were the conditions under which we operated:

. . . 2500 square feet of office space were being used at a central location to store the forms, at an annual cost of approximately \$7,500.

. . . One full-time stock boy and one full-time clerk did nothing but receive, carry, pile, and mail forms to our stores.

Forms storage space at the New York office has been reduced from 2,500 to 150 sq. ft. . . .

. . . but ample stocks are maintained at the printer's plant for immediate shipment to any location.



... We had a complex inventory control system that took three full file cabinets and everybody's time. Despite this we were still tied up constantly in "rush" special delivery and parcel post orders from stores. Costs added up rapidly.

... Instead of being purchasing agents we were becoming form handlers. For example, I was spending anywhere from 12 to 18 hours a week designing forms, checking inventory, allotting office space, handling shipping details and interviewing printing salesmen.

Under a plan worked out with our printer, Cullom & Ghertner, Nashville, Tenn., most of this storage, inventory checking, shipping and other paper work mechanics are now done at the printing plant. And we get a regular, accurate report on the status of our forms stock.

At the beginning of each year, we sit down with the printer and plan all forms for the year ahead. This gives us an opportunity to stand-

PRINTED FORM SPECIFICATION										Form 150- 14 9-53	
CUSTOMER- Mercantile Stores Co Inc.										Annual Usage	
FORM NUMBER- 58 DATE- 4/24/54										Auth. Stock 125 M	
TITLE- Sales Inventory										Job Lot	
Finished Size: Width (Inches) (Left to Right) 17 Length (Top to Bottom) 14										Limited Stock 25 M	
Remarks:										Price per Thousand 5.48 M	
PAPER STOCK - COLLATING ORDER										Master Plate Copy Prep. Sampled	
GRADE										NUMBERING	
Weight Color Sides Printed										Last No. Printed:	
Bond 11 White 1										<input type="checkbox"/> NEW FORM	
Cover Stock: Ruling Per. Color of Ink Black										<input type="checkbox"/> REVISED FORM	
PUNCHING 2 3/8" Slotted 7" Side										Changes:	
PERFORATING Banded Bound Padded Units to Package										Disposition of Present Authorized Stock:	
SPECIAL INSTRUCTIONS:											
A.S. 125M Min. stock 25 M, balance on hand 24,500.											
May we rebuild A.S.?											
Date <u>4/24/54</u> Signed <u>J. G. Gherter</u> FOR PRINTER											
Date <u>5-21-54</u> Accepted <u>R. J. Gherter</u> FOR CUSTOMER											
CULLOM & GHERTNER CO.											
Printers & Lithographers & Publishers											
NASHVILLE 4, TENNESSEE											

RELEASE ORDER					
MERCANTILE STORES CO., INC.				Nº 637	
128 WEST 31st ST. - NEW YORK 1, N. Y.					
DATE ORDERED _____					
To: CULLOM & GHERTNER CO. 600 21st AVE. NO. NASHVILLE 4, TENN.					
SHIP TO: _____					
QUANTITY	UNIT	FORM NO.	PRICE PER UNIT	DATE SHIPPED	SHIPPED VIA

CULLOM & GHERTNER CO.
Printers & Lithographers & Publishers
NASHVILLE 4, TENNESSEE

Specimen forms are supplemented with a complete specification, including authorized quantities.

When a supply requisition for printed forms is received, it is filled promptly from printer's stock by issuing a release order.

TO: PURCHASING DEPT.		NEW FORMS OFFICE		SUPPLY REQUISITION	
				(Use Separate Requisition Form for Each Item)	
ITEM	F29-Unit Inventory Slip	NEEDED BY	June 1st	(DATE)	
QUANTITY TO BE ORDERED	150 M	WILL LAST	6 mos.		
LAST PURCHASE QUOTATION	FROM Cullom & Ghertner	ORDER #			
QUANTITY	150 M	COST	.77 M	DATE	12/16/53
IMPORTANT					
DISPLAY REQUISITION—Give complete description, size, ply, surface, color on paper items. Catalog number, size, finish etc. on fixtures and display forms.					
*PRINTED FORM REQUISITION—Give starting number. If manifold, state number of sets to the book.					
*SEND 3 SAMPLES of each Store Form (Forms not listed in Standard Form Register)					
REMARKS:					
DATE: <u>5/3/54</u>					
STORE <u>Jones #5</u>					
Authorized by <u>Frank Bailey</u>					
BE SURE INFORMATION IS COMPLETE					
P 110-100 M 1-46					

ardize, simplify and otherwise improve all forms.

Once the plan for the year has been approved, all forms for the next twelve months are ordered, with provision for stocking at Nashville.

As requests for forms come from our member stores, they are checked at New York headquarters against past orders and current requisitions from comparable stores. Ordering information is then sent to the printer, who takes the requested forms from stock, packs and ships them to the requisitioner. We are notified immediately and pay only for the portion of the annual order shipped.

Monthly inventory reports are sent us, showing what part of the annual allotment remains. If, as occasionally happens, we have underestimated our requirements, extra forms are ordered to replenish the printer's supply.

How The Program Works

Five simple forms comprise the mechanics of the system:

(1) *Printed Form Specification Sheet*. This is submitted by the printer for each form number. It describes the form title, size, paper, stock, ink, and other specifications. Under "authorized stock" is the joint estimation of the number of forms needed for the year. Under "limited stock" is the point at which the printer must receive authorization from us for a new printing. If, for example, the "authorized stock" figure is 125,000 and the "limited stock" reaches 25,000 the printer notifies us immediately. This system works smoothly and has virtually eliminated sudden emergencies and harried last minute conferences.

(2) *Supply Requisition*. Ordering store fills out this sheet, comparing present quantity required with last order placed. It is sent to New York headquarters for review.

(3) *Purchase Index Card*. Since almost all forms for the year are decided on at the beginning and prices remain constant for the year, the lengthy and elaborate stock control system we formerly used was reduced to a miniature index file with a couple of hundred 3 x 5 cards. A typical card holds only about ten typed words—for example, "Form 79 . . . Dummy Invoice . . . C. & G. . . 2.56/M . . . padded 100"

(4) *Release Order*. This tells the printer where, what, how, and how much to ship to individual stores.

(5) *Inventory Examination*. A monthly report, telling us the overall annual stock status.

What It Means To Us

The form-stocking program we have followed has had definite, important results. Among these are:

Time-saving—Stocking and indexing forms has been turned from an all-day daily headache to an afternoon's work. The printer does practically all the work we formerly did. To me, this has meant a saving of about ten hours each and every week.

Cost reduction—Ordering a year's requirements lowered the cost per unit immediately. Further, the

INVENTORY *Mercantile Store Co.* PAGE 2

SHEET NO. _____

ENTERED BY _____

PRICED BY _____

EXTENDED BY _____

EXAMINED BY *March 4, 1953*

CALL BY _____

DEPARTMENT _____

LOCATION _____

CHECK	QUANTITY	DESCRIPTION	PRICE	UNIT	EXTENSION
	36000	Sack + Linen Labels			
	9000	Nylon Labels			
	50.07	Unit Wanted			
	5750	Collective Blanket			
	11830	First Lady Blanket			
	6000	Campanella Labels			
	25690	Customer Statements			
	16.000	Spout Cap			
	23853	First Lady Blanket Stk			
	5080	First Lady 100% Wool			
	1350	Farm 154			
	53.000	" 156			
	9700	" 157			
		" 168 in Production			
	11000	" 172			
	9000	" 173			
	8700	" 174			
	18000	" 175			
	32586	" 176			
	105.850	" 177			
	12086	" 183			
	375686	" 190			
	11600	" 194			
	2000	" C-337			
	2800	" CA 412			
	9900	" CA 414			
	38740	" CA 421			
	8900	" CA 437			
AMOUNT FORWARD					

Form 79 Dummy Invoice

C. & G. 2.56/M padded 100

Key to stock control is the periodic itemized report of quantities on hand at the printer's plant. Forms are identified at the purchasing office by a simple card index showing form number, title, and price.

printer's ability to "gang up" combination runs to use an entire printing plate has enabled him to cut costs even more.

Lowered inventory in less space—Where we formerly used 2500 square feet of stocking space, we now use 150. Storage space in New York costs anywhere from \$3 to \$6 per square foot—in Tennessee from \$.50 to \$1 per square foot. Part of this saving has been passed on to us.

Fewer employees—Within a year after the program started, we were able to dispense with the services of one full-time stock boy and one clerk.

Better, less-expensive shipping—Because all forms were pre-planned for a year, they could be shipped to our member stores at regular

intervals at regular freight rates. Previously, last-minute emergencies had called for various forms of expensive fast transportation. Another advantage is the central location of Nashville, which makes delivery swifter and less expensive.

New forms and form design, standardization, use of color, and other factors that have formed the basis for many articles are properly of great importance to the purchasing agent. But form designing is only the beginning. Form stocking, handling, indexing, packing and shipping are also important parts of any coherent and cost-conscious forms program. The excellent results we have had with such a program have given us satisfying proof of that.

Handling Variances in Purchased Material Costs

The purchased material variance reporting system described here was developed by the purchasing and accounting departments of the Crocker-Wheeler Division of the Elliott Company when that division was located at Ampere, N.J. Recently, since this article was prepared, Elliott Company has made certain changes in its organization, and the motor manufacturing facilities formerly located at Ampere have been moved to Jeanette, Pa.

WHERE and why purchased material costs vary are, of course, important to management. But the information is even more valuable when all interested departments of a company get it regularly, in simple, accurate form.

At Crocker-Wheeler Division of the Elliott Company, Ampere, N. J., manufacturer of electric motors and generators, this data is issued monthly through a joint effort of the purchasing and accounting departments. At the end of each

month, accounting prepares a Purchased Material Variance report, showing where actual costs for specific items differ from pre-set standard costs. Wide variations, and those not immediately understandable, are explained in footnotes, based on information supplied by purchasing.

Participation in the preparation of the Purchased Material Variance report is one aspect of a program of close purchasing control administered by Purchasing Agent Chris Walden

PURCHASING		ELLIOTT COMPANY CROCKER-WHEELER DIV.		FORM P. C. 1	
RECEIVING REPORT					
ACCOUNT OR ORDER NO.		No. 77039			
DATE RECEIVED	NAME OR CODE	MATERIAL TO DEPT.			
DESCRIPTION OF MATERIAL					
QUANTITY ORDERED	UNIT	VENDOR			
QUANTITY RECEIVED	PURCHASE ORDER NO.	UNIT WGT.	COST PER LB.	UNIT STD. COST	UNIT ACTUAL COST
BALANCE DUE	CHECKED BY	INSPECTOR	REMARKS		
ACTUAL COST	STANDARD COST	DELIVERED TO AND SIGNED BY		DATE	

PURCHASING		ELLIOTT COMPANY CROCKER-WHEELER DIV.		FORM P. C. 1	
RECEIVING REPORT					
ACCOUNT OR ORDER NO.		No. 77040			
DATE RECEIVED	NAME OR CODE	MATERIAL TO DEPT.			
DESCRIPTION OF MATERIAL					
QUANTITY ORDERED	UNIT	VENDOR			
QUANTITY RECEIVED	PURCHASE ORDER NO.	UNIT WGT.	COST PER LB.	UNIT STD. COST	UNIT ACTUAL COST
BALANCE DUE	CHECKED BY	INSPECTOR	REMARKS		
ACTUAL COST	STANDARD COST	DELIVERED TO AND SIGNED BY		DATE	

Figure 2. The Receiving Report is a 7-part continuous form. Copies are distributed to Purchasing, Material Control, Accounting, and Inspection. Accounting matches its copy with the invoice, and prepares from it a punched card (accounts payable) showing actual cost, standard cost, receiving report number, supplier's code, and inventory class.

The purchased material variance for _____ is \$3,501.77. The schedule is self-explanatory with the footnotes if compared with the last report.

<u>DESCRIPTION</u>	<u>CLASS</u>	<u>ACTUAL</u>	<u>STANDARD</u>	<u>VARIANCE</u>
NEMA Castings	1 (D)	71,183.29	70,556.84	626.45
W Castings	5 (E)	19,965.65	19,891.04	74.61
Renewal Parts	6	393.37	377.42	15.95
Vinyl Wire	10 (A)	3,819.59	3,607.41	212.18
Other Magnet Wire	11	8,703.81	8,610.41	93.40
Bare Copper	12 (B)	6,687.57	6,274.97	412.60
Other Non-Ferrous Metals	13	1,604.69	1,557.29	47.40
Silicon Sheet Steel	14	27,108.43	27,016.02	92.41
Hot Rolled Sheet Steel	15	1,654.99	1,509.21	145.78
Other Steel	17 (C)	5,996.20	5,357.23	638.97
Insulation	18	12,083.72	11,977.83	105.89
Miscellaneous Purchased Parts	19	1,163.94	1,187.16	23.22 CR
NEMA AC Parts	21	3,778.03	3,516.81	261.22
B Parts	22	449.60	455.90	6.30 CR
F Parts	23	25.28	31.44	6.16 CR
Alpha H Parts	24	334.45	331.00	3.45
W Parts	28	721.08	734.05	12.97 CR
Miscellaneous	29	965.14	904.62	60.52
Renewal Parts Purchased	36	638.12	572.29	65.83
Shipping Materials	38	2,268.99	2,435.40	166.41 CR
		171,955.69	169,315.96	2,639.73
Packaging costs of sheet steel for outside storage				426.92
Sandblasting and dipping of castings				435.12
				3,501.77

- (A) We bought indices at new increased prices, but because we expect the prices to drop we have not revised our standards downward.
- (B) This arises because our poundage purchase of commutator bars is dropping. Bare copper has a sliding scale based on poundage required. This increased cost was written off.
- (C) We purchased steel from warehouses because our unit requirement was small. We previously had bought this steel from the mills.
- (D) We have not changed the standard to reflect the latest price increase of the ABC Foundry because we are starting to transfer the patterns to a lower priced foundry.
- (E) We wish to point out that on index 1024-4, a casting bought from FDI Company, the price of .373 is correct. We bought 12 pieces. They charged us for 675 lbs., whereas the weight should be 475 lbs. We have already debited the supplier and he has accented it.

Here's how the Purchased Material Variance figures are developed:

"Until management realizes that employees are infinitely more complicated than the machines they operate, maximum cooperation and working efficiency will seldom be achieved."

—Alfred B. Howe

at a forum on administration problems, Philadelphia Association of Purchasing Agents

The Human Side of Management

By Leslie F. Robbins

THE AUTHOR has for many years directed the purchasing department of the University of Colorado and has taught the course in purchasing at that institution. He is an active member of the Denver P. A. Association, and has served on the National Executive Committee of N.A.P.A. He has also been active in the affairs of the National Association of Educational Buyers and has been a valuable leader in its training conferences.

MANAGEMENT is as much an art as it is a science, maybe more so. This applies to the management of even a purchasing department. There may be those who regard management primarily as a set of procedures, backed up by official regulations and flanked by a contingent of selected personnel, each person with his official title and designated function. That is only part of management. In the ultimate analysis, management consists of having each one in the department know what the boss wants done and then getting it done. The

better sort of management includes more than just barely getting the job done. It involves getting the people to do their work creatively and constructively.

Who is the Boss and What Does He Want Done?

In this usage, the boss is not just one specified person in each firm, but rather the term represents the whole chain of command, — those with authority and concurrent accountability, up and down the ladder. To a janitor the head custodian is the boss; to the president the Board of Directors is the boss. Most bosses take orders from someone.

It is understandable that occasionally the boss does not know exactly what he wants done, in definitive terms, or **all** that he wants done at any one time. He usually knows in general terms at least some of the things he wants done, and, of course, he knows that he wants all departments and individuals under his supervision to function with a high degree of effectiveness. But the choice of specific procedures for the work may be subject to differences in judgment. He may be qualified to judge what constitutes the currently best procedure and performance, but again he may not, especially if his supervision extends over a wide range of technical pro-

cesses. The comptroller or general manager to whom the purchasing agent reports may have been trained in purchasing, but he may not have. He may know good purchasing performance when he sees it, but he may not be as well qualified to make purchasing decisions as is the purchasing agent. Nor is the president necessarily the best judge of a program of floor maintenance.

The Art in Management

It is the afore-mentioned stipulation of 'doing their work creatively and constructively' which separates the men from the boys in management. Procedures, regulations, policies, official titles—these are not living things; they are but channels, guideposts, and implements. It takes **people**, all kinds of people, to give life and meaning to the mechanics of operation. Sometimes people act according to a prescribed pattern but often they do not.

A study which deals with the patterns of actions of people is usually thought of as being in the realm of the social sciences. But social science, as a science, can only apply to large enough masses of people to be subject to analysis and prognosis. Individuals are often unpredictable and must be dealt with on an individual basis, or at most in

small groups with a definite consciousness of the individuals in the group. The management of most departments in a business, and probably of the business as a whole, therefore is an art as well as a science.

It is the art of human relations.

Each of the arts has its own media. Among the media of the art of human relations are ideas and the communication of ideas. There are other media in this art also, such as; emotions, attitudes, interests and ideals, but there is not enough space in this article to touch upon them all. Anyone who aspires to become proficient in this art of human relations must understand something of these media and how to use them effectively. Much of this understanding is not obtained from books and lectures. Mostly it is acquired in the school of life. Some say the talent for it is inherited.

Communication

By and large, the point of most frequent failure of effective management, it seems, is in the area of communication. We don't make ourselves understood. In spite of the many schools and colleges, only about one in every fifty persons can express himself easily and adequately. The difficulty apparently starts with a weakness for condoning incomplete and inexact information; it is compounded in sloppy thinking, and the process of communication is finally wrecked by the inexpert use of words and terms. We tend to presume that the mental image we have associated with a certain word or expression is the one correct and universal meaning for that expression regardless of the fact that, if we have not actually looked it up, our interpretation may be quite inadequate.

And we mumble!

This is all deplorable in any intercourse; in the purchasing office it can be all but fatal to effective operation. Except under the heading of "specifications", almost nothing is said in the text books and in the courses in purchasing about the great need for more clarity of expression. Usually, however, only the items of importance in cost or quantity, rate such a written specification. What about the great majority of items which the purchasing department is required to buy for which the "specification" is more likely to be a phone call asking that "another bunch of those thing-a-mabobs" be bought?

The other facet of the break-down of communication is that too often we listen with only a half an ear. We get only a faint impression of what is being said to us because we are so intent on our own thoughts and are so certain that we know just what the other fellow is about to say that all after the first five words are lost on us and wasted. Talk about your iron curtain; this "ego curtain" is really impenetrable!

Those extroverted free-wheeling operators to be found in almost any business organization who are impatient with routine and forms, will tell you that most of the material put into writing in the course of a business day is thereby embalmed. No one bothers to read instructions, they say, and the few who do don't understand them. The way to get things done, they say, is to pick up the phone, call Charlie, ask him about his family, his lumbago and his bowling score, and when he is placid tell him what you want. Well, mebbe so, mebbe so. At least it is the human side of the operation. Perhaps the more sure way to com-

municate is, after having called Charlie, to confirm the matter in writing, in language and terminology that even Charlie's Aunt could not misunderstand, and then keep a carbon copy.

And so, one of the first tasks of the manager of the purchasing department is to see to it that there is the least possible chance of failure to communicate. He should set the example by being lucid in his own speech and correspondence and by requiring the same of those who report to him. His buyers should be instructed not to let any instance pass unchallenged wherein they are in doubt as to exactly what is meant by any communication, oral or written, which comes to their official notice.

Creative and Constructive Management

If the boss is a genius and knows more about the department and what it ought to be than all others put together, then no one around him need do other than just what he says to do. But if he is a normal



"It's That Promotion I Promised You, Hadley—I'm Giving You Another Phone to Answer."

human being with the normal quota of limitations and shortcomings, he will sometimes need help in deciding what he wants done. There is where the opportunity occurs for his associates to be creative and constructive, if they can.

A highly effective purchasing manager once said, "Don't go to the boss with problems. Go to him with solutions." Good advice. Probably every manager has had the experience of having to deal with a subordinate who runs and jumps into his lap with every problem which arises. Perhaps the manager has invited this kind of behavior by having tried in the past to decide all questions both great and small, instead of encouraging others to assume some responsibility for decisions.

If a person in a subordinate position hopes to be considered for advancement to a prospective opening with greater responsibilities, the place for him to demonstrate his eligibility is in the position he currently holds. A trite observation, but how seldom does an awareness of its truth appear! The solving of operational snafu involves mental effort. Some operators seem not to have the mental equipment to cope with really tough problems, but in many cases it can be assumed that the failure to resolve a situation is attributable to mental laziness or other bad mental habits.

Wanted: Imagination

Alex Osborne, writing on *Applied Imagination*, has the right idea. Where there is a problem one should turn the imagination loose and see how many possible solutions he can think up. They can then be sifted down to the one or two that seem most likely to succeed. If one really needs the backing of higher authority he should go to the boss with his best judgment among the alternatives available, and ask his advice. With the advice he will probably receive a measure of increased respect and some sound support—handy things to have around. Conversely, to make it a practice to go to the boss with every jumbled-up headache and dump it in his lap, is bad psychology. It will not be too long before he will hate to see you coming.

People with limited insight frequently resent the fabulous paychecks that some managers are reputed to receive. Those managers get their king-size salaries, if any, because of their demonstrated capacity to handle the big headaches.

No one should permit himself the luxury of envying these managers unless there is also the comprehension of those giant economy headaches. One should not aspire to someone's else larger size troubles until he has shown he can successfully treat his own modest cramps, for with bigger pay go ever more excruciating pains.

But, lest the earlier paragraphs of this opus have given the impression that the only place where initiative is called for is in the solving of those sneaky problems which come up behind us and kick us in the pants, let us hasten to affirm that effective management is not passive; it is dynamic. Many problems can be obviated by alert anticipation. Most of all, there is the opportunity to be creative in our approach to all of our functions.

Potential of the Group

Again, Alex Osborne is cooking on the front burner: there are new values waiting around every corner to be discovered by the alert manager who has imagination and who cultivates the creative potential in the members of his department. The periodic staff meeting and the staff conference are the "group dynamics" of modern business. Man is probably closest to being immortal when he is constructively creative.

This is not a plea for more democracy in business management. It still will be the responsibility of management to manage. The boss will have to give the word and make the decisions. In making decisions, management can not afford to forget that there are interests to be safeguarded other than the desires of the majority of the current employees. There is, for instance, the little matter of profits out of which dividends can be paid, and that other little matter of pleasing the customers so they will keep on buying.

And there is an evil of excess as well as the fault of deficiency in this business of making changes. Sometimes a newly appointed manager who is prone to confuse mere change with progress will feel called upon to change all of the tweedle-de-dums into tweedle-de-dees and vice versa, just to prove that something new has been added. Not so good!

For the most of us, being creative will not result in the discovery of some new theory of relativity or in the revelation of a universal touchstone. It will probably consist of

finding a new and useful application of some old and familiar factors or in the making of new and potent combinations of existing elements.

Keeping the Boss Informed

Question: How much should the boss be told? Answer: at least as much as you have reason to think he wants to hear. Maybe he can be made to want to hear more if what he is told is well told. The boss should undertake to give every one under his supervision an idea of how much he wants in the way of reports, and should guide them at first in the preparation of those reports. By all means he should have all of the information he asks for and nothing should be withheld which might be of use to him in making valid decisions and accurate evaluations.

Moreover, there are occasions when information should be proffered even when it is not called for in the report pattern provided. He is bound to "hear things about things" and it is simply good human relations, not to say public relations, to keep the boss informed on the significant facts of what is happening in the department and, perhaps, some of the things that are not happening which should happen.

Reports of routine operations can usually be tabulated and summarized and appropriate comparisons can be drawn with the help of charts and graphs. Matters other than routine should be made the subject of brief but accurate oral reports or written memos. Now and then an extensive study or analysis may be in order, and this should be compiled in concise and workmanlike style, omitting no essential detail. Such studies are usually made in the prospect of a possible change in policy or procedure; hence the presentation will be expected to provide a clean-cut conclusion or recommendation.

Team Spirit vs Office Politics

Unless the office is a dictatorship, everything possible should be done to establish a climate which is favorable to the team idea. Any department staff which lacks the team spirit is vulnerable to the usual tendency to divide up into factions or cliques. There tend to be those who are 'with' the boss and others who are not. Everyone in the organization should have reason to feel

(Please turn to page 324)

Is a contract difficult to fulfill? That's a risk the seller takes, and for more than 300 years the courts have held it's his problem.

Legal Excuses for Delayed Deliveries

By Albert Woodruff Gray

A PURCHASE contract with a New York motor truck dealer stipulated for the delivery of ten Ford pick-up trucks on a specified date. A steel strike and the imposition of Federal Regulations interfered, and the trucks were not delivered as agreed.

In his defense to the suit brought by the purchaser for this failure to deliver, the dealer contended that the steel strike and these regulations of the National Production Authority had made delivery impossible, and that as a consequence he was absolved from his obligation to deliver on the date set by the contract.

Difficulty Is No Excuse

In its decision last year that these circumstances afforded no excuse for this failure to deliver, the New York court said:

"The strike made steel very scarce and the regulations made it the duty of purchasers and distributors of steel to use such as was available in filling orders which the National Production Authority rated as essential to the National Defense Program; but neither the strike nor the regulations made the manufacture of Ford trucks illegal and they did not cause to pass out of existence the Ford trucks which, I must assume, were on hand in Ford plants and in sales rooms of thousands of Ford dealers throughout the country in numbers far in excess of those this dealer promised to send and then failed to deliver.

"The practice of inserting in contracts for the delivery of manufactured articles clauses relieving the seller of liability if delivery be prevented or interfered with by strikes, lockouts or other inability to get raw materials, is widespread and familiar, and contracts which do not contain such clauses cannot be justly or fairly read as if they did contain them.

"To do that would defeat the fair and just expectations of the purchaser, who generally makes the contract for the express purpose of putting upon the seller the risk of such events and the resulting difficulty of getting the manufactured article."

Then referring to the obligation imposed by the law that deliveries must be made as agreed except when prevented by law, impossibility or the act of the buyer, the court concluded in its decision in favor of the purchaser.

Well Established Precedent

"The law has undoubtedly come a long way since that English decision established this principle in 1646, but I think it has not reached and should not be permitted to reach the point where performance of an unqualified and unconditional promise to deliver an insignificantly small number of an article ordinarily manufactured and sold over the country by tens of thousands, is excused by the strike of the workmen engaged in the production of a product which is

but a part, even though an essential part, of the manufacture of such an article."

In that old English case to which the court referred, it was said:

"Where the law creates a duty and the party is disabled to perform it without any default in him and hath no remedy over, there the law will excuse him. But when the party by his own contract creates a duty or charge upon himself, he is bound to make it good, if he may, notwithstanding any accident by unavoidable necessity, because he might have provided against it by his contract."

Is Performance Impossible?

The Supreme Court of the United States in adopting this rule of that English court almost a century ago, said:

"If a condition be to do a thing which is impossible, it is void, but if it be to do a thing which is only improbable or absurd, or that a thing shall happen which is beyond the reach of human power, as that it will rain tomorrow, the contract will be upheld and enforced.

"The principle deducible from these authorities is, that if what is agreed to be done is possible and lawful, it must be done. Difficulty or improbability of accomplishing the undertaking will not avail the seller. It must be shown that the thing cannot by any means be effected. Nothing short of this will excuse performance."

The law of that English decision of the seventeenth century was recently applied to a controversy involving the purchase of lumber to be shipped from Brazil to New York. The seller failed to ship as agreed, insisting that no ships were available in January, 1941, and that its delay, on that account, was excusable.

"Even had there been no ships available," said the court in refusing to excuse this delay, "the seller was not under the circumstances excused from performance. The war in Europe had been under way for more than a year and Pearl Harbor was still in the future. Neither the United States nor any of the South American countries entered the war for a year or more after the making of the contract. Hence, the lack of ships in January, 1941, was a foreseeable risk which the seller willingly took upon itself and it cannot under such circumstances plead the defense of impossibility."

In another similar instance involving a contract for the delivery of

judgment against the seller the Federal Appellate Court said of this defense:

"There was no excuse for the seller's failure to perform. No doubt we have gone far from that early English decision but a promise still involves risks that the seller may find burdensome or even impossible to meet. Its very purpose is to give assurance to the buyer against the hazards of the future. The seller by undertaking these conditions relieves the buyer and it is in the end a question of how unexpected at the time was the event which prevented performance.

"Had all the steamers of requisite capacity been captured in the war or destroyed in a hurricane the excuse might serve. So far as appears the only impossibility was the unusually high freight. The mere fact that the contract had become unexpectedly burdensome is seldom if ever enough. This was a risk which both parties well understood and in the face of which the seller made his engagement."

all arguments spring from having two definitions for the same word.

The confusion of this feature of the law, the excuses for delays in delivery, is the change in the definition by the courts of the word "impossible" in that famous statement of the Supreme Court, "If a condition be to do a thing which is impossible, it is void."

Termination or Suspension?

A contract for the purchase of oak flooring was made in November, 1941, the lumber to be held by the seller until delivery was ordered by the buyer. Before the lumber was delivered, executive orders of the Federal Government made the delivery illegal and that situation continued until 1947.

When this government prohibition was lifted in the fall of that year the buyer asked for delivery of the lumber and the seller refused. In its decision of the controversy arising from these circumstances, the Minnesota Supreme Court said of the law as it is today in relation to delayed deliveries:

"The rule is well established that illegality of performance of a contract, such as this, terminates all obligations of the parties thereunder if it is likely that the changed conditions following the period of illegality will substantially increase the burdens of performance.

"Where such illegality of performance is due to war or conditions created by war, both American and English courts have almost uniformly determined that the obligations of the parties to such an agreement are completely terminated, rather than merely suspended until the end of the period of illegality."

Reasonable Interpretation

Courts now recognize exceptions to that one time inexorable rule that excused delays only for absolute impossibility of performance, illegality, or the conduct of the other party. A contract for the delivery of coal to a steel manufacturer was made by a Georgia coal company at the time of World War I and deliveries were blocked by the action of the Fuel Administration in assuming control of coal mine operations for sixteen months beginning with August, 1917.

Later in its decision of the suit brought by the purchaser the court said:

"It is a well settled rule of law that if a party by his contract charge himself with an obligation possible

(Please turn to page 314)

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Village of Minneota v. Fairbanks Morse & Co., 31 N.W. 2d 926 Minnesota

six cargoes of coal at Rio de Janeiro, Brazil, suit was brought by the purchaser for a failure to deliver. In its defense the seller maintained that delivery had been impossible due to a lack of vessels caused by a Welsh coal strike.

In its decision of an appeal from a

Since the early days of this century business and industrial conditions have changed and with these changes the courts have tempered the former harshness of these rules of law governing delivery delays. A one time famous (or perhaps infamous) French statesman said that

REQUISITION:

Mineral-Free Water for a Critical Quality Operation

By J. E. Burwell

Manager, Compounding & Service
Airfoam Development Department
Goodyear Tire & Rubber Company
Akron, Ohio

DUE to its extremely economical operating costs, as compared with distillation, demineralization by ion exchange has come into very extensive use in a large number of fields. Costs and operating convenience were factors in our deciding to purchase this type of equipment for a critical operation.

Chemists and chemical engineers are now using these ion exchangers (cation and anion resins) in literally hundreds of applications where previously available techniques and exchange resins were inadequate.

In the manufacture of Airfoam, in both our Akron, Ohio, and Los Angeles, California, plants, Goodyear has found it necessary to carefully control the materials that go into the natural and synthetic rubber latex during compounding. This is necessary to maintain high quality standards and reduce processing problems.

The rubber particles in the latex carry a negative charge and are therefore readily susceptible to coagulation in the presence of strong positively charged ions. The divalent

ion such as calcium and magnesium, as well as zinc and iron, will tend to cause these rubber particles to coagulate prematurely. This not only affects the quality of the product, but if continued to any degree, results in processing difficulties and excessive waste.

For this reason, it has been our practice to use distilled or demineralized water as the base material for all compounding dispersions as well as for final dilution to control solid content. When production of Airfoam was in its early stages, it was convenient to produce distilled

water by condensing steam. However, as production grew to the stage it is at this time, it became readily apparent that the volume of distilled water from steam was not only uneconomical but imposed undue hardship on the available steam producing facilities.

During the initial expansion of Airfoam in 1947-1948, the use of softened water was considered. However, information available at that time indicated that the softened water was not suitable since it merely converted the calcium and magnesium salts to sodium salts.

Water Characteristics at Akron, Ohio

Before Demineralization

Total Hardness	150 ppm.
Total Dissolved Solids	165 ppm.
Silica	4.6 ppm.

After Demineralization

Total Hardness	0 ppm.
Total Dissolved Solids	3 ppm.
Silica	0.1 ppm.

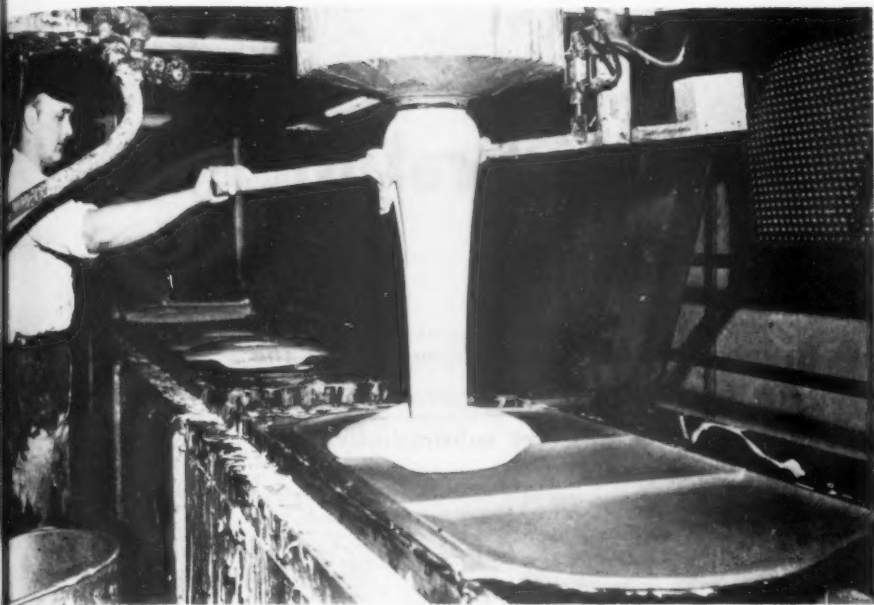
Water Characteristics at Los Angeles, California

Before Demineralization

Total Hardness	209 ppm.
Total Dissolved Solids	282 ppm.
Free-Iron	0.1 ppm.
Silica	24 ppm.

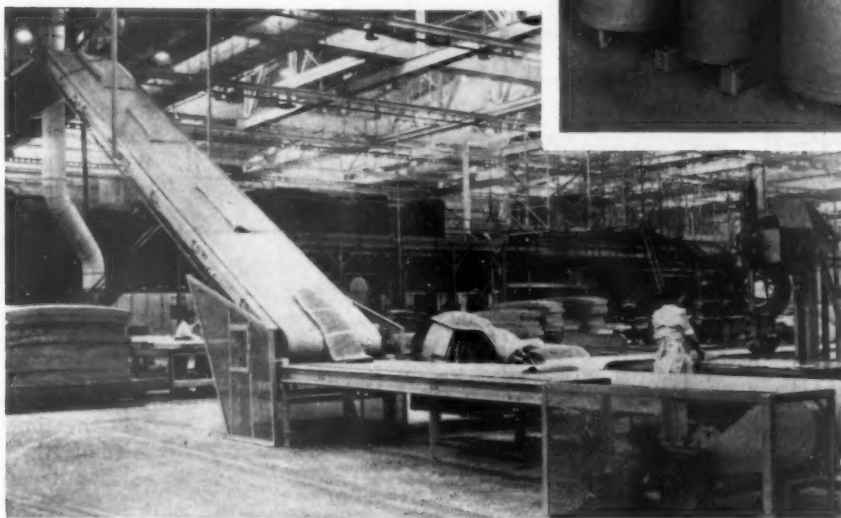
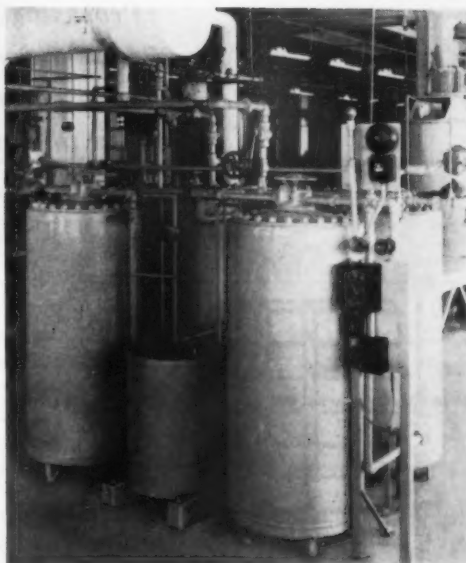
After Demineralization

Total Hardness	0 ppm.
Total Dissolved Solids	5 ppm.
Free-Iron	0.025 ppm.
Silica	0.1 ppm.



In the production of Airfoam, liquid latex is poured from a giant frothing unit into molds, prior to entering the curing ovens. Mineral impurities in process water would cause the rubber to coagulate prematurely.

Double unit demineralizing installation at Goodyear's Los Angeles plant, specified after excellent performance and economy experience with a similar installation at the Akron plant.



Airfoam is in mass production for mattresses, automotive seating, and upholstering material. Demineralized water helps in maintaining good quality control, avoiding processing difficulties, and reducing waste.

While not as harmful to the process, the sodium salts were still undesirable and no action was taken at that time.

With the expansion of 1950-1951, the estimated consumption of distilled water was such that the Plant C (Akron, Ohio) power house facilities would be sorely taxed for production processing as well as steam for distilled water. At this time, we again contacted the manufacturers of water treating equipment and, after considerable discussion selected such demineralizers as the desired units.

With Permutit equipment we are able to continuously produce demineralized water free of not only calcium and magnesium, but also free of sodium salts and with a purity of 3 to 5 parts per million total dissolved solids.

Since the alkalinity of this water can also be controlled and the resultant product is iron-free, it proved to be water considerably higher in quality than we were getting from the existing distillation equipment. Two 28-inch diameter units have been in continuous operation at Plant C since 1950 and

similar units were selected for use in the Los Angeles Airfoam producing plant. In both plants, the cation exchanger was Zeo-Karb H and the anion exchanger was Permutit S, a highly basic exchanger.

While cost figures are not readily available, it is our opinion that the production of demineralized water from the Permutit units is at a considerable saving over the previous use of distilled water. Operation of the Permutit units has been relatively simple and the routine control tests can be run rapidly and with positive results.

A Statistical Method

Projecting inventory requirements and performance for the great majority of stock items that do not warrant the executive effort of individual decisions, yet substantially influence total profits and service

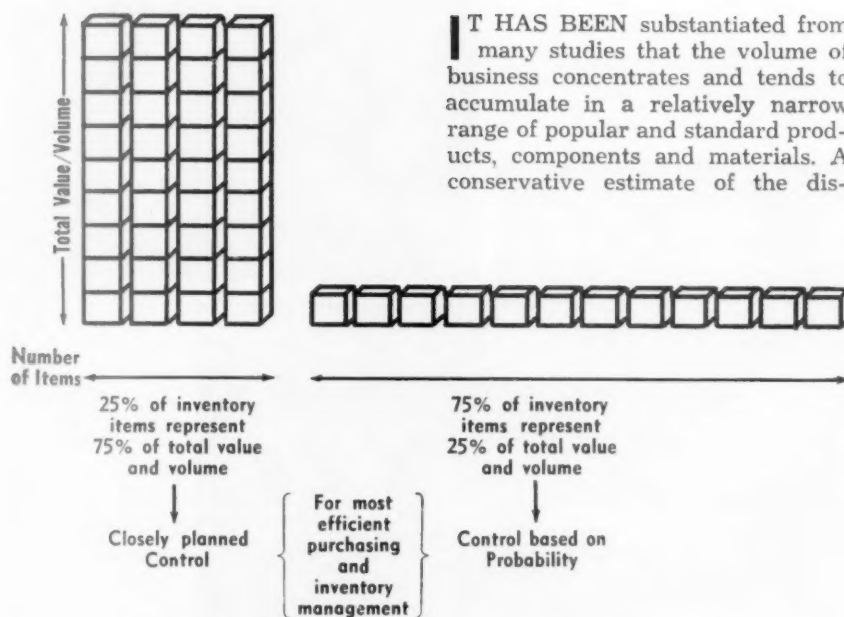


FIGURE 1. How distribution of stores items affects control policy

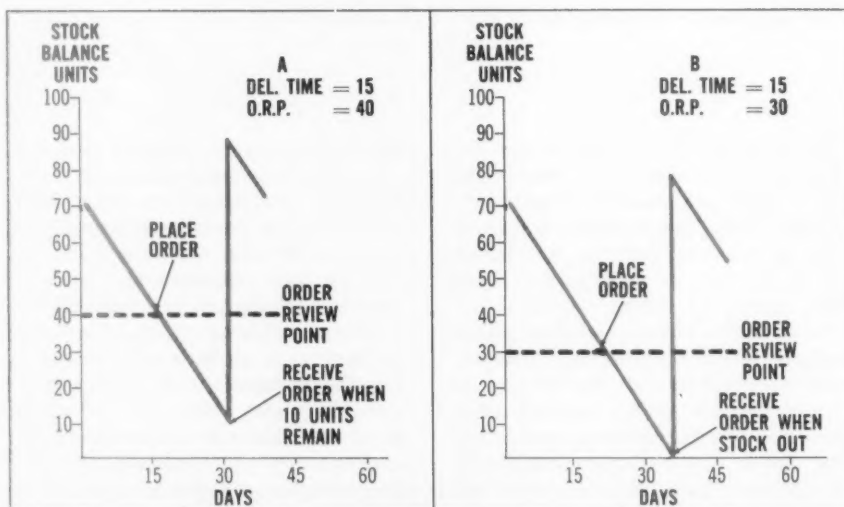


FIGURE 2. Effect of order review point on protective stock

tribution as concerns stores items would be:

25% of the accounts represent 75% of the sales or issue value.

75% of the accounts represent 25% of the sales or issue value.

The Westinghouse policy is to handle the 25% of the high value accounts on a *planned* basis, and the 25% of low value accounts on a *probability* basis. This permits us to direct the major part of our efforts in planning (determining future requirements) and control (seeing that products keep selling and production keeps coming as planned) to the items where the most money is involved.

In the beginning, so that we could gain the time to concentrate on the 25% of the "planned accounts", it became necessary to gain some time in brain power. Obviously, unless we wanted to increase operating expenses, we would have less time to spend on the remaining 75% of "probability accounts". The probability or statistical approach afforded us the opportunity to redistribute our efforts by trading manpower for inventory investment. In other words, rather than spend the time for determining requirements, controlling and expediting the 75% low value items, we permit the inventory to take up the slack, controlling the degree of service and inventory investment for these items by injecting the proper amount of protective stock.

Control of the Protective Stock

Protective stock is defined as the average amount of stock on hand when restocking orders are received.

of Inventory Control

By **W. F. Hoehing**

Research & Planning
Hq. Production & Inventory Control Department
Westinghouse Electric Corporation
Pittsburgh, Pa.

Its purpose is to protect the item from going out of stock on an average, more times than is desirable for adequate service.

Of course, the most desirable condition would be to issue the last piece just as the restocking order is received. Unfortunately, to maintain such a condition is beyond the realistic realm. Three things can and usually do happen during the time a restocking order is open:

1. The number of demands for stock can be greater than expected.
2. The size (units) of the demands can be greater than expected.
3. The delivery or procurement time can be longer than expected.

If we were to operate a stores inventory account with no protective stock, any minute abnormal occurrence in any one of three possibilities would cause a stock-out. As a matter of fact, with this situation, we might expect a stock-out every other time we ordered. This condition would seriously impair service and operating efficiency.

One of the decisions we must make to control stores inventories is *when* to place restocking orders. This decision is predicated upon an order review point. "When" infers time, and the order review point expresses time in the form of usage during the expected delivery time. The amount of protective stock thus depends upon how high over the expected usage during the delivery time, we set an order point.

The examples in Figure 2 are based upon using two units per day on the average, and an expected delivery time of 15 days. In Example A we set the order review point at 40 units. This takes into account 10 units for protective stock.

Number of Demands per Month												
Year	J	F	M	A	M	J	J	A	S	O	N	D
A	4	6	6	3	1	1	1	2	2	2	3	4
B	2	3	4	4	5	3	2	3	3	5	2	3
C	3	3	4	2	3	4	1	3	1	2	2	0

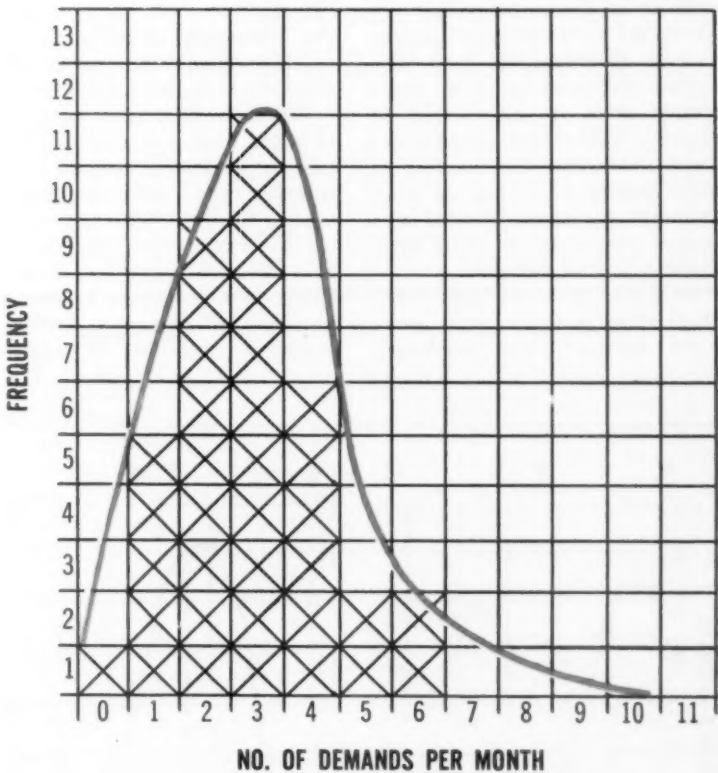


FIGURE 3. Distribution of Number of Demands per Month

(2 units x 15 days = 30 units per delivery time, plus 10 units protective stock = order review point of 40 units.)

In Example B, the order review point was set at 30 units. If the average usage is constant, the item

will go out of stock just as the restocking order is received. But under actual conditions, if any of the three possible deviations—number of demands, size of demands, or delivery time—had been larger or longer than the average or expected,

the stock-out would have been caused earlier and/or would have been of longer duration. The result: possible loss of sales or costly interruptions to production.

These examples permit developing a basic premise upon which to establish our protective stock controls; i.e., when using the order review point technique, the only time we can get a stock-out is when a restocking order is open. This is because the order review point will force the placement of an order before the stock can be depleted. Hence, our protective stock problem can be narrowed down to the probability of what will happen during the restocking time.

To solve this problem, we can consider a statistical or mathematical approach.

Determining Frequency Distribution

To start, suppose we deal with one of the three possible occurrences which can cause a stock-out—demands or orders. By reviewing the ledger account and accumulating the number of demands which occurred during a selected and appropriate time interval, we may discover that the frequency of their occurrence gives us an insight to their behavior. If many samples are made and show that the number of demands during a period of time approximates the same general distribution or frequency, we shall have developed a law of behavior.

For example, take the data from an actual case and see what happens. An account was reviewed,

tabulating the number of demands during a selected time interval of one month, over a period of three years. (See Figure 3.) Next, this information was plotted to show the frequency of occurrence of the number of demands per month, giving us a distribution curve.

We note that the curve superimposed over our graphic tabulation has a particular shape. If we did this for other accounts and similar curves were obtained, we could use the curve to express the chances of a given number being exceeded. From such tests, we know that the number of demands (when they occur at random) approximates a

Poisson distribution, familiar in statistical work. Suppose we accept the fact and draw a Poisson curve for an expected average of 2.8 demands (as in our example), and see how closely our actual case fits. (See Figure 4.)

At first glance, the fit of the actual distribution against the Poisson does not appear to be too good. The rather high frequency (11) of 3 demands per month distorted the picture a bit. However, our sample was small, only 36 observations. Had we had more data, it is possible that the relative frequency of 3 demands would have been less, thus achieving an even closer approxima-

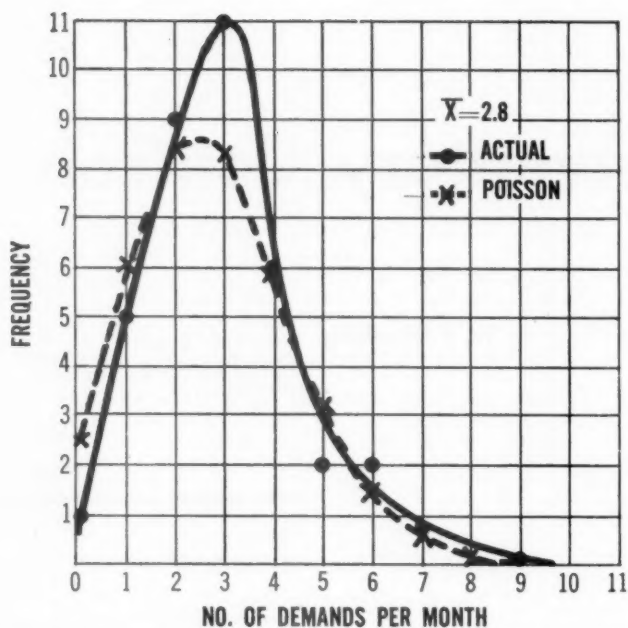


FIGURE 4. Relation of Actual Distribution of Demands to Poisson Distribution

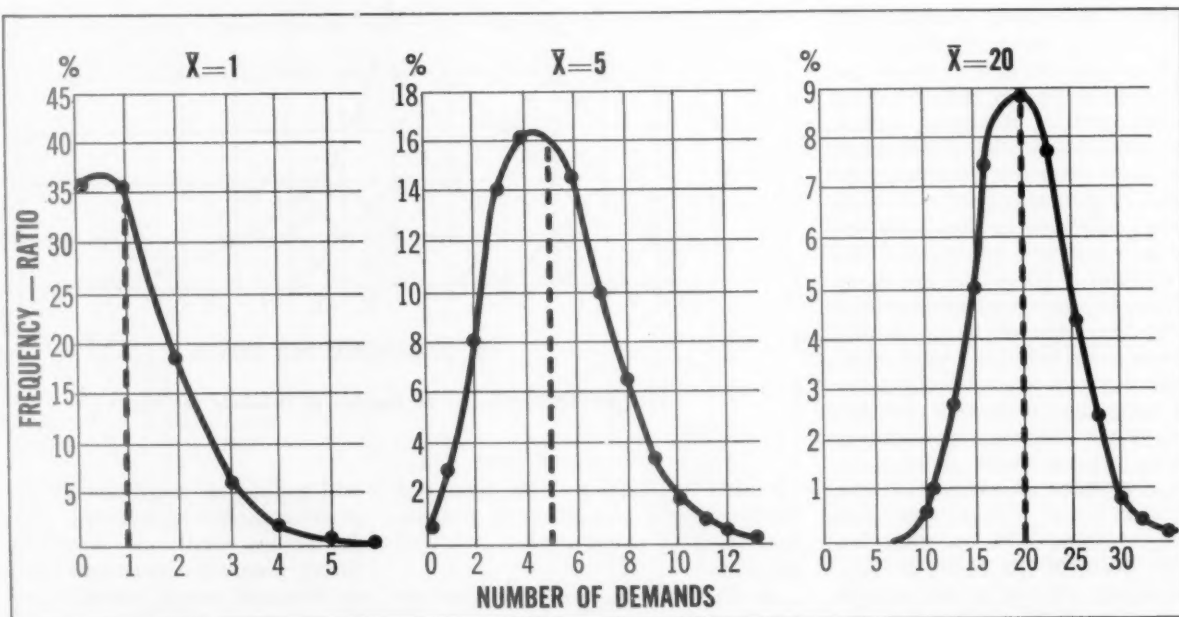


FIGURE 5. Poisson Distributions for Various Averages

tion. For our purpose, let us agree that our test was successful and that it approximates a Poisson. Knowing this, the question is how we can use our knowledge in inventory control.

Probability of Stock-Outs

Remember, our objective is to provide service by ordering in time so as to minimize the chances of stock-outs occurring. Using the data of the actual case, we find that the average number of demands per month was 2.8. Assume that the restocking time is also one month. Then we can expect, on the average, that we will get 2.8 demands during the delivery time. For each such average or expectancy, we can construct a particular Poisson distribution. Figure 5 shows several examples. It will be noted that the shape varies for each value of the average or mean. The area under the curve represents approximately 100% of the cases involved. (It is a characteristic of the curve not to close, i.e., reach the X ordinate, but to continue to infinity.)

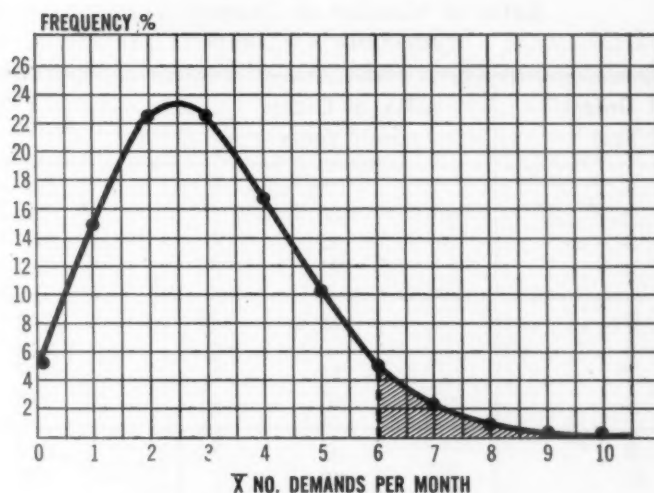
Thus, if we can measure selected areas under the curve which are circumscribed by a perpendicular ordinate drawn from a given point on the horizontal ordinate, we can calculate the chances of that point being exceeded.

The procedure is illustrated in Figure 6—a Poisson distribution for an average of 3 demands per month, constructed from the data of the accompanying table, which lists the frequency of occurrences from 0 to 10. To present the problem, an ordinate has been constructed at 6 demands. From the "Ratio" column of the table, we find that about .034 of the area of the curve lies to the right, or over 6 demands. Therefore the chances are that 96.6% of the time, the number of demands will fall at 6 or less, and 3.4% of the time there will be more than 6 demands.

This gives us an approximate answer to our inventory control problem. To limit the chances of a stock-out occurring more than 3.4 times in 100, the time to enter a restocking order in this example would be when the stock balance reached the equivalent of 6 demands, and we would need 3 demands worth of protective stock in addition to the expected 3 demands during the restocking period of one month.

Handling Variable Situations

The example thus far represents a static condition. To make a practicable application for inventory control we must be able to handle



Frequency of Occurrences of Poisson Dist.
 $X=3$

No.	Frequency of Occurrence Ratio	Ratio (Inverse Accumulation)
0	.049	.951
1	.149	.801
2	.224	.577
3	.224	.353
4	.168	.185
5	.101	.084
6	.050	.034
7	.022	.012
8	.008	.004
9	.003	.002
10	.001	.001
∞	∞	∞

FIGURE 6. Poisson Distribution for Average Demand of 3

variable situations. Hence we have two further considerations:

- Perhaps we would want to vary the degree of protection, say from one stock-out in 2, 3, . . . 10, etc., chances. This means that we must be able to calculate the values represented by an infinite number of areas under the curve.
- Also, we know that the average number of demands during the restocking times will vary from one item to another.

To answer the first consideration (a) selectivity of protection, we must find an expression for the number of stock-outs; e.g., one stock-out per some number of chances which we expect to happen during a given period of time, say 1, 2, 3, etc., years. What we need to know is the frequency of chances we will take of going out of stock during a period of time.

Earlier we established a basic

premise which provides the key. This was that we can have stock-outs only when a restocking order is open. It is obvious then that the frequency of ordering relates to the chances of having stock-outs. If we express the number of orders placed (chances taken) per period of time, we can determine the ratio of chances by item.

The table shown as Figure 7 gives the ratios calculated for a protective period of five years. Now we have the ability to select any number of finite areas under the curve for a given protective period. The lower part of the table shows how we can use this information. Suppose we want to limit the chance of stock-outs to once in 5 years, with an average of 3 demands in the restocking period. If we place one order per year, for an estimated full year's requirements, the ratio of .20 (from Figure 7) is found to fall between .353 and .185 in the third column of Figure 6, corresponding

Ratio of Number of Chances For
1 Stockout in 5 Years

No. of Orders in 1 Year	No. of Orders in 5 Years	Ratio
1	5	.20
2	10	.10
3	15	.067
4	20	.050
5	25	.040
6	30	.033
7	35	.029
8	40	.025
9	45	.022
10	50	.020
11	55	.018
12	60	.017

Protective Stock For Expectation
of 3 Demands

Orders Per 1 Year	Ratio	(D) No. of Demands*	Protective Stock $D - \bar{X}$ (or 3)
1	.20	4—	1—
5	.04	6—	3—
10	.02	6.5	3.5

*Approximate, by observation, reading the inverse accumulation in Table C of Figure 9.

FIGURE 7. Method of Calculating Protective Stock Required

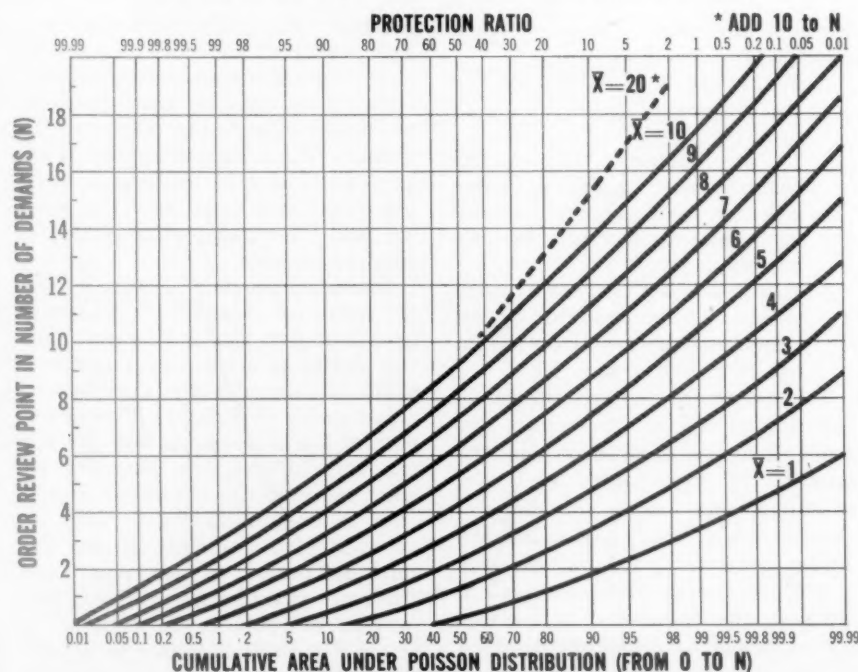


FIGURE 8. Poisson Distribution—Accumulative for Determining Order Review Points

to between 3 and 4 demands per period, which we designate as 4—; our protective stock must therefore be the difference between this quantity and the expected average. Therefore, subtracting the average (3), our protective stock is calculated as somewhat less than one demand. If we are placing 10 orders per year, for smaller quantities per order, the ratio of .02 falls about half way between .012 and .034, corresponding to 6.5 demands, and our protective stock must be 6.5 — 3, or 3.5 demands.

Had we chosen a shorter protective period, e.g. one stock-out in two years, all the ratios in Figure 7 would have become smaller (the chances taken would be less). For 5 orders per year, we would place 10 in two years, and our ratio would then have been .10, a little greater than .084 in Figure 6, corresponding to 5— demands. The protective stock in this case would be (5—) — 3, or 2—, instead of the 3— required for one stock-out in 5 years. Obviously, then, for fewer chances or a shorter protective period, it is observed that less protection is required.

For General Use

Now considering the problem of different values for the average number of demands during the restocking time, we have already noted that the Poisson curves take different shapes for different averages. The lower the average, the more skewness; the higher the average, the more symmetrical the curve becomes. One way to solve the problem of how much protective stock is required for various ratios of protection would be to calculate each problem—a long and laborious task. However, a set of curves can be drawn which represents the accumulative frequencies of averages of the Poisson distribution. Such a chart for several different values is shown as Figure 8.

To use this graph to find the order review point in number of demands, obtain the protection ratio, as in Figure 7 and enter the graph at the proper point on the "Protective Ratio" ordinate at top of chart. Move down vertically to the curve representing the expected number of demands during the restocking or delivery time period. Opposite this point on the curve, read the order review point on the left hand scale.

This graph includes only 10 values of averages, from 1 to 10. Probably there is a need for additional values on the low side, i.e., curves for averages of .8, .6, .5, etc. If needed, these values can be ob-

tained from the tables of the Poisson distribution which are available in statistical books.

In considering averages of more than 10, we can approximate the solution in a more direct manner by using a simple arithmetical approach. As the expectancy or average becomes higher, the Poisson distribution tends to become more symmetrical. Hence to find the approximate order review points for values of the average over 10, we can treat the problem as though we had a normal distribution. Briefly the method is this:

Enter a table of Areas of the Normal Curve and obtain the value of the number of standard deviations for this protective ratio. Take the square root of the expected or average number of demands to get the value of one standard deviation. Multiply this by the number of standard deviations to get the value of the protective stock (in demands), and add this figure to the average to get the order review point (in number of demands).

Deviations in Size and Time

Up to this point, we have solved the first problem—protection against more than the expected number of demands. The next problem concerns protection against deviation in the size of demands.

As we know, in inventory control we deal with units. Usage during the delivery time and the order review point can be converted into units by multiplying the number of demands by the average size of demands. Realizing that the average size of demands can be exceeded and cause stock-outs, a certain amount of protection for that purpose must also be considered. The size of demands is an exponential function which should be calculated for a particular stocking location. The factor, once derived, can be used in conjunction with the number-of-demands factors to arrive at the combined required protection. A table which fits the particular Westinghouse requirements is shown as Figure 9.

The final problem in determining "when" to place restocking orders concerns delivery or procurement time. Although in Westinghouse we consider protection against deviations in delivery time in certain instances, we prefer to use forecasts. Therefore, we have established the practice that the Purchasing Departments shall keep the inventory groups advised of current procurement times. By the same token, the Manufacturing Divisions

ORDER REVIEW POINTS TABLE OF PROTECTIVE STOCK FACTORS

Protection
1 Stock Out in 2 Years

RESTOCKING FACTOR		DEMAND FACTOR			
No. of Restk. Orders Per Year (N_r)	Factor (R)	No. of Demands During Delivery Time (N_d)	Factor (D)	No. of Demands During Delivery Time (N_d)	Factor (D)
1	.00	1	.85	13	3.00
1.2	.35	2	1.20	14	3.10
1.5	.75	3	1.45	15	3.20
1.7	.95	4	1.65	16	3.30
2.0	1.15				
2.5	1.45	5	1.85	17	3.40
3.0	1.65	6	2.00	18	3.50
3.5	1.85	7	2.20	19	3.60
4.0	1.95	8	2.35	20	3.70
4.5	2.10				
5.0	2.20	9	2.50	22	3.95
6.0	2.35	10	2.60	24	4.10
7.0	2.50	11	2.75	26	4.20
8.0	2.65	12	2.85	28	4.35
9.0	2.75				
10.0	2.85			30	4.50
11.0	2.90			40	5.20
12.0	2.95			50	5.85

Instructions:

A. RESTOCKING FACTOR

1. Obtain (N_r) number of restocking orders per year from order quantity table and read Factor R.

B. DEMAND FACTOR

1. Obtain number of demands during past three months from ledger and divide by 90 days to get demands per day.
2. Obtain delivery time in days and multiply by number of demands per day to get number of demands during delivery time (N_d) and read Factor D.

C. PROTECTIVE STOCK

1. Calculate protective stock; multiply the Restocking Factor R, times the Demand Factor D.

D. ORDER REVIEW POINT

1. Add protective stock to the number of demands during delivery time (N_d) to get order review point in demands.
2. Obtain past 90 days' issues or sales from ledger; divide by the number of demands in the past 90 days to get the average size of demand.
3. Calculate order review point in units by multiplying the ORP in demands times the average size of demands.

FIGURE 9. Order Review Point Protective Stock Factors

keep the District Sales groups advised of current shipping or delivery times in the case of finished goods.

What, one may ask, do we get out of all this work? Our answer to this is "Management Control". First we must agree that with the organized procedure, everyone connected with inventory control should be performing the functions in the same manner. All the decisions "how

much of what, and when"—are performed in accordance with the costs involved and service required. These cost and service considerations are boiled down into easy to use tables. Hence, when a change in cost occurs, or a change in customer service or inventory investment is desired, all that is required is for the management to issue instructions to use different tables.

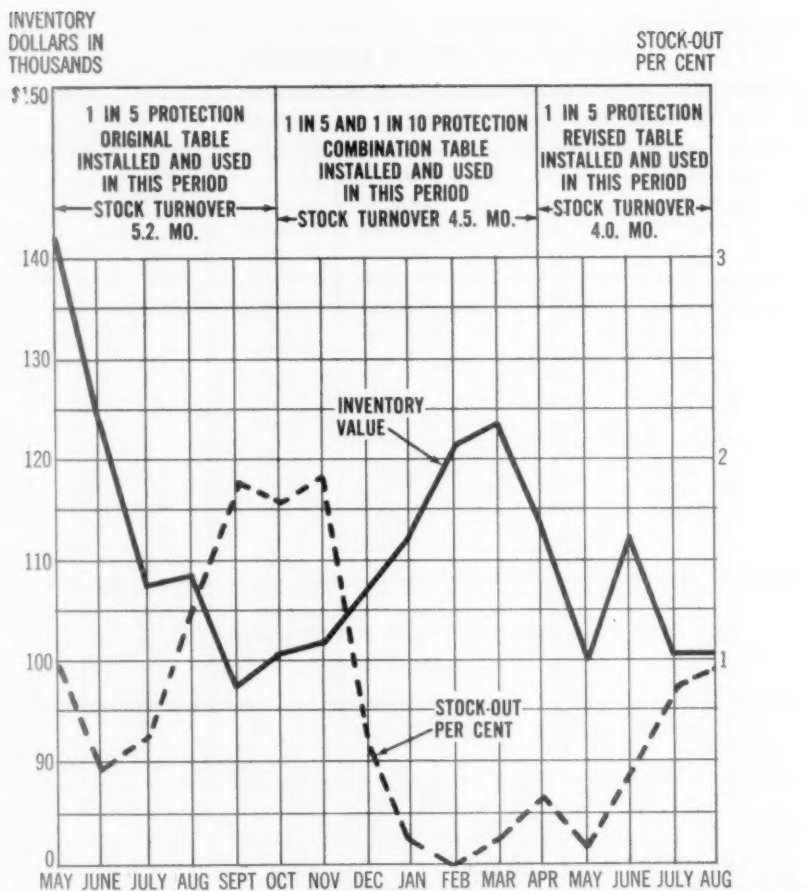


FIGURE 10. Relationship of Inventory and Stock Out Frequency for Various Degrees of Protection

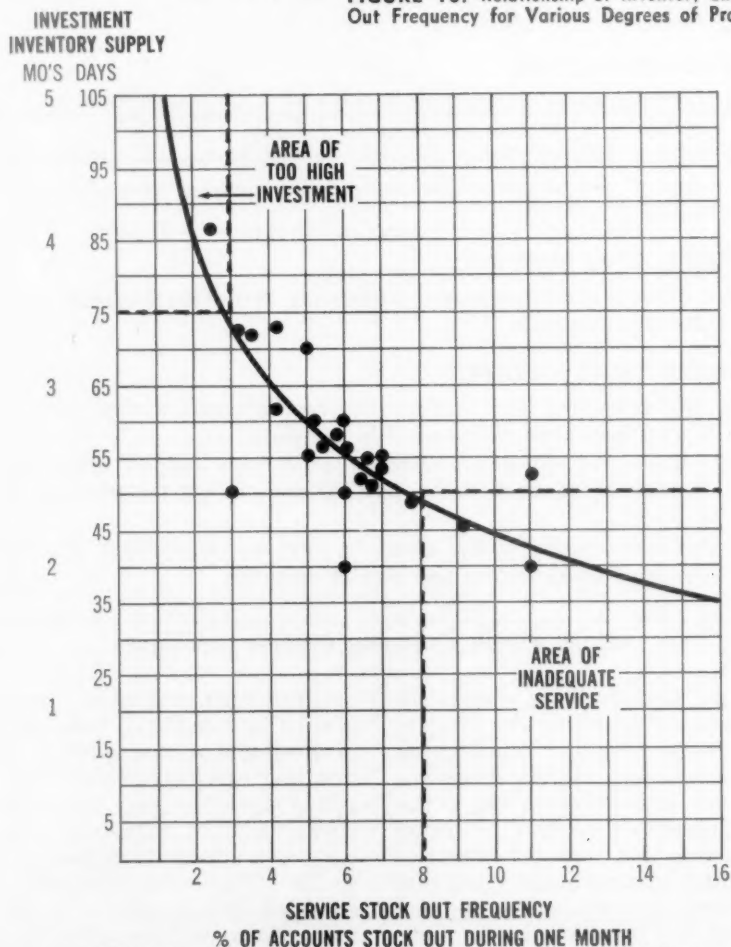


FIGURE 11. Relation of Inventory Investment to Service Obtained

The effect of changing the degrees of protection, and results on the inventory investment therefrom, are shown in Figure 10. It will be noted that each time a different protection table was used, the inventory value and per cent of stock-outs moved in opposite directions. In general, the higher the protection, the higher the inventory, and the converse is true.

If we accumulate sufficient history of the frequency of stock-outs and the inventory investment (in terms of turnover or supply rates) we can construct a useful management tool. Figure 11 shows a curve constructed from such data.

Again we see that as service increases, inventory investment also goes up. This curve will enable management to put a value on their decisions. For example, should management want to increase service from 6% stock-out to 4% stock-out, we know we can expect an increase in inventory equivalent to a 10 days' supply, from 55 to 65 days. Then knowing the value of 10 days' supply of inventory, say \$100,000, and the carrying cost, perhaps 9%, we can calculate that such a decision would cost \$9,000. Now, the question is, can we obtain more profit from additional sales, or reduce costs caused by interruptions to production? In each case, the additional profit or cost reduction should exceed the \$9,000 cost of additional investment.

This is how management can make the decision based upon the costs involved, rather than on hunches or speculation. As stated before, the decisions can be effectively carried out all the way down to inventory clerks by merely giving instructions to use another ordering table. This is *Management Control of Inventory*.

One cannot wish for good inventory control. This accomplishment can come only after much hard work. The statistical methods outlined here are just a start. It may be said that we are but on the threshold of this field of management control—perhaps where time and motion study and statistical quality control were about 20 or 30 years ago. If these techniques are to succeed, the essential ingredients to success must be acceptance and support by top management and the complete teamwork of middle management. With the whole management team working in unison toward the inventory control goals, we can and will make maximum profits per dollar invested in inventory.

Ideas from Employees

By Phil Lance

PROGRESSIVE executives who are continuously searching for ideas to improve methods should keep their office door open to their employees, for the person close to the job may prove to be a valuable source of suggestions and new ideas.

Techniques for obtaining these ideas vary, but the personal interview or conference is generally the most effective. Asking for written suggestions has been found to yield the least results. Recording a suggestion on paper is a laborious process for many people, especially if any extended explanation is required. Further, unless there is a systematic method of acknowledging and reporting on the ideas thus submitted, the person with a suggestion doesn't have the satisfaction of knowing the reaction to his idea, and his interest is apt to wane. Most employees prefer the easier method of talking, which gives them the opportunity to expand, explain, defend, or urge their suggestion as the case may require.

The best way to encourage employees to express their ideas freely is to convince them that their interest is desired and appreciated, and listening to their suggestions with an open mind. Some employers and supervisors resent recommendations made by others. They reject such ideas as being an infringement on their domain, where all decision and instruction is supposed to originate. Those who are more concerned with their firm's progress than with their personal vanity will welcome the thoughts of others and will apply those ideas that have merit.

Don't attempt to belittle an employee's suggestion, or become angry if it implies some criticism of present methods. If you hurt his pride, you destroy his interest and morale, and he may never offer any further suggestions. Remember that he is sincere, and that he may be right. But regardless of how unworkable or unrealistic his suggestion may be, the worst thing you can do is to cut him off before he has completely expressed his thoughts. If he is obviously on the wrong track, this may be the ideal opportunity to set him right and to explain to him why things are done as they are.

One successful department head makes it a practice to sit down in the office with his employees, and to note their suggestions on a file card. It is a good means of evaluating the employee, particularly in respect to his interest and initiative. The cards are dated for future reference, and are shown to the employee at future interviews, pointing out the status of his suggestions, especially those which have been utilized. The dating is important, because sometimes there may be a considerable lapse of time before it is feasible to apply a good suggestion—as, for example, expanding garage facilities or buying a new dual-purpose machine tool.

An effective way of dealing with new suggestions is to get a group of employees together for a general discussion. The regular staff meetings held in many companies and departments provide such an opportunity. One man's comment gives encouragement to another, who will speak out and express a different

side of the picture. If a suggestion is not practicable, other employees are likely to spot the fallacy in it, or to add some comment or further suggestion that will make the original idea workable. Then everybody is happy over the part he has played in the development toward a better plan. If an idea is not workable, participation of the group keeps the chairman from having to criticize and to be blamed for rejecting the idea.

Group discussion also helps in getting acceptance for new methods. Some people who have been doing a particular job in a particular way for a long time may not be aware that there is a better way. They may even balk at any attempt to change the routine to which they are accustomed. They will find all kinds of objections, why it should not and cannot be done in any way



"This suggestion you submitted, Hawley, concerning duplication of effort in the billing department, is excellent. I find that we can dispense with your job entirely."

but the old one. But it is hard to make those objections stand up against the acceptance of the idea by the group. In an organization that is alert to progressive methods and is not allergic to change, he becomes imbued with the spirit, and is more readily willing to try a new technique.

The executive's task in such a conference is to lead it, not to dominate it. He should stimulate others to do the talking, keep the conversations rolling, and keep the discussion on the subject. Having a prepared program of the points to be discussed is helpful. These points should be read at the beginning of the session, set up on a blackboard, or placed in everyone's hands in typewritten form.

Don't make the meetings too long. After 45 minutes or so, efficiency drops, interest lags, and discussion tends to stray from the subject. Don't be disturbed if something has to be held over for the next session, rather than curtailing the discussion

on a point at issue and pushing an overcrowded schedule to conclusion. It may actually be helpful in creating interest for the next session, and there may be some constructive thought given to the matters during the interim.

Give credit to those who originate a helpful recommendation. Put their ideas to work as promptly as possible, and let fellow employees know where the ideas have come from and why they were considered worthwhile. The originator of the suggestion is naturally pleased that his idea has been found worthy of adoption, and is thus encouraged to give additional thought to his job and to make further suggestions. The other employees, seeing that "one of them" has been recognized, are encouraged to offer some suggestions of their own. The fact that an employee has a personal voice in the operation of the business for which he works may in itself be a satisfactory conversation. Where it is consistent with company policy,

it may be appropriate to recognize deserving suggestions with a more tangible reward.

Leadership and originality must come from top supervision and management, but there are many valuable ideas to be found in the minds of one's associates. The person close to the job, from his daily experience, frequently has practical ideas for improving the efficiency of the methods prescribed for him.

Personal conferences give an opportunity to become better acquainted with the individual members of the departmental staff, to learn a person's likes and dislikes, his enthusiasms and his peeves, and to sound out his real attitude toward the organization for which he works. Practically everyone has his own personal opinions, and it is far better to have them expressed openly, where something can be done constructively about them, and for the good of all concerned. Frequently the executive himself can learn a lot in the process.

New Purchasing Set-up at DuKane



Edwin E. Swick



Ralph Magden

TO step up its search for new materials going into the manufacture of electronic products, the DuKane Corporation of St. Charles, Ill., has launched a dual purchasing operation. In addition to normal procurement for established production, a specialized office has been set up specifically to explore new materials and sources of supply.

In announcing the change, Executive V. P. George R. Haase calls attention to what he terms "a rapidly expanding opportunity to make use of new inventions of electronic materials". As an example, he cites

encouraging progress in utilization of the transistor, a tiny miracle substitute for the radio tube, which promises many new applications in the manufacture of such items as commercial sound systems, sound slidefilm projectors, and tape recorders. Other current developments include advancements in printed circuits, in plastics, and in "building block" components which greatly simplify assembly of complex electronic products.

"All of these technological gains being studied by our research and engineering departments would be

greatly implemented through a specialized procurement procedure which can translate electrical engineering into a steady flow of modern materials to our plant," says Mr. Haase.

To administer the new venture, Edwin E. Swick, formerly purchasing agent, has been reassigned as Purchase Manager. Ralph Magden, formerly a buyer, has been named Purchasing Agent to take over some of the direct procurement functions previously performed by Mr. Swick, and to act as his assistant.

The Pulse of Business

FEBRUARY, 1955

PURCHASING'S

Summary of economic conditions

Upward trend in production, sales, and new orders continues. The Federal Reserve production index began 1955 at 130% of its 1947-49 average. This is seven points higher than its mid-summer low and four points over its year-ago level.

Giving impetus to increased output are new orders which are up nearly \$600 million in the past month. They are now at the highest level since July, 1953.

There is every reason to believe that the widely publicized inventory adjustment of 1953-4 has ended. Latest figures show slight increases in manufacturers' stocks. However, this is no cause for alarm. So far, inventory increases are merely keeping pace with increased sales.

An optimistic outlook for business is now almost universal. For example, about 90% of the purchasing agents on the N.A.P.A. Business Survey Committee anticipate continued improvement. There is a solid basis for this rosy view. Steel production is over 80% of greatly expanded capacity and certain types of steel are actually in short supply. Auto assembly lines are running near capacity and construction activity goes on setting new records.

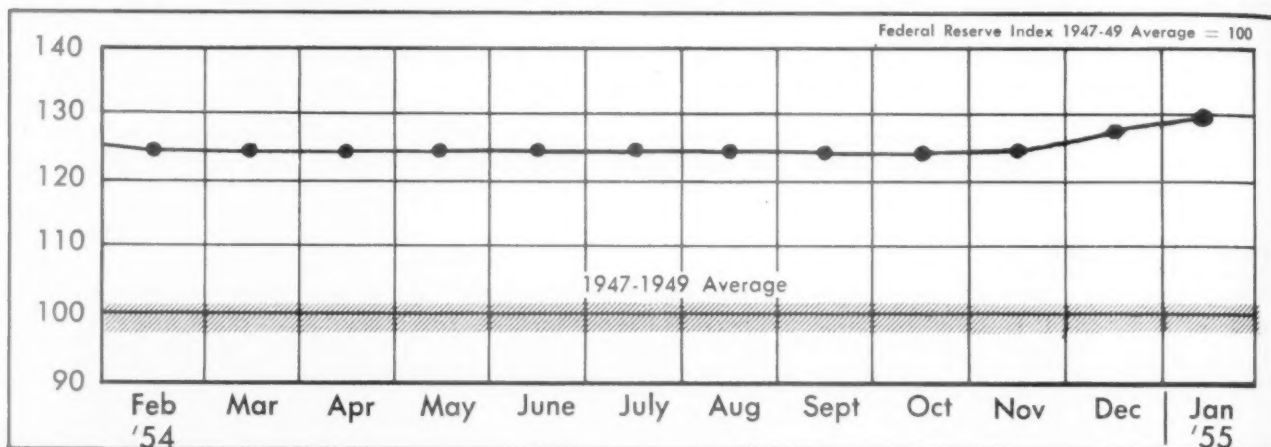
But with optimism so rampant, perhaps some caution is necessary. The balance between consumption and production is an extremely delicate one. Normally, in a declining market, business men are over-pessimistic and produce less than requirements. And in a rising market, they tend to over-stock and over-produce.

Certainly there are no current signs of excesses (unless you want to put that tag on the continuing expansion of consumer credit and borrowing for stock market speculation.) Department store sales are above year-ago levels. Autos and other durable consumer goods sales are about in balance with their expanded production. Although there is pressure on some raw materials prices, over-all price indices remain steady.

Nevertheless, it's still a good question whether the market can absorb currently expanded output six months from now. Although the long-range outlook is bullish, another short period of adjustment - and it should be a mild one - is not unlikely later this year.

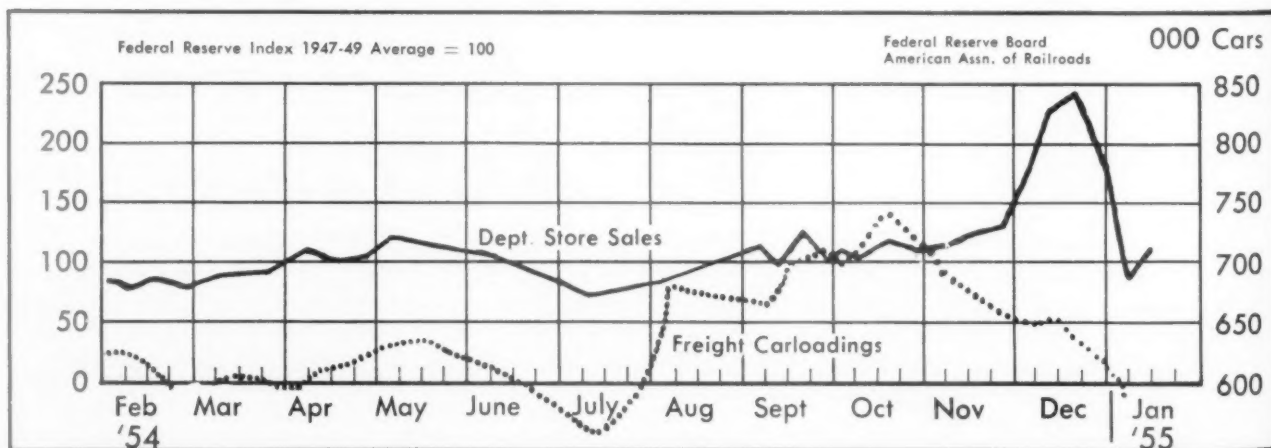
THE PULSE OF BUSINESS

PRODUCTION



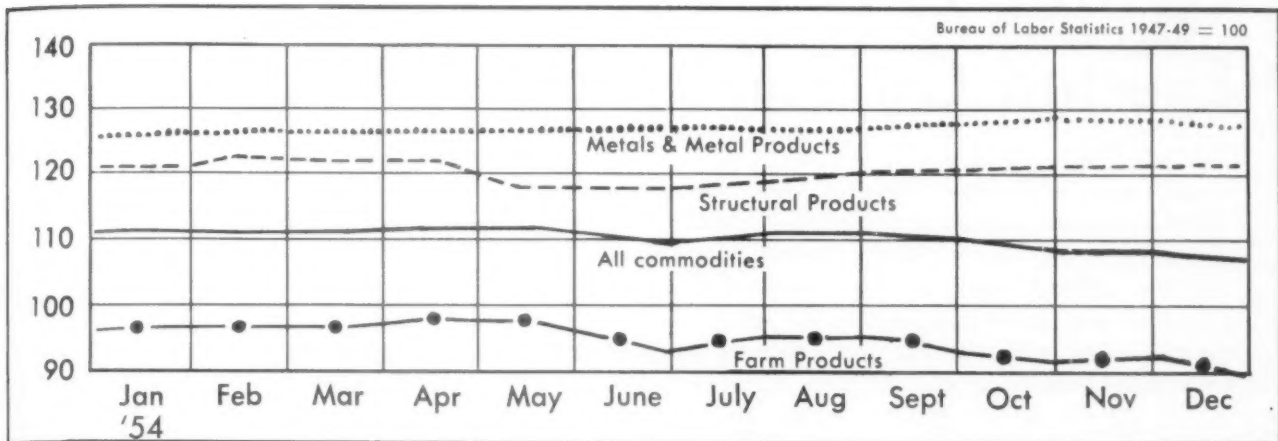
	BASE	LATEST	MONTH AGO	YEAR AGO	% OF CHANGE IN	
					MONTH	YEAR
Industrial Production Index	1947-49=100	130	129	126	+ 0.8	+ 3.2
Steel Production (Weekly)	000 net tons	1,943	1,944	1,798	- 0.01	+ 8.1
Electric Power Production (Weekly)	mil KWH	9,400	9,612	8,174	- 2.2	+15.0
Bituminous Coal Production (Weekly)	000 net tons	7,430	8,970	6,790	-17.2	+ 9.4
Auto, Truck & Bus Output (Weekly)	units	142,556	171,588	86,431	-16.9	+64.9
Petroleum Output (Daily Average)	000 bbls.	6,235	6,286	6,100	- 0.8	+ 2.2

TRADE



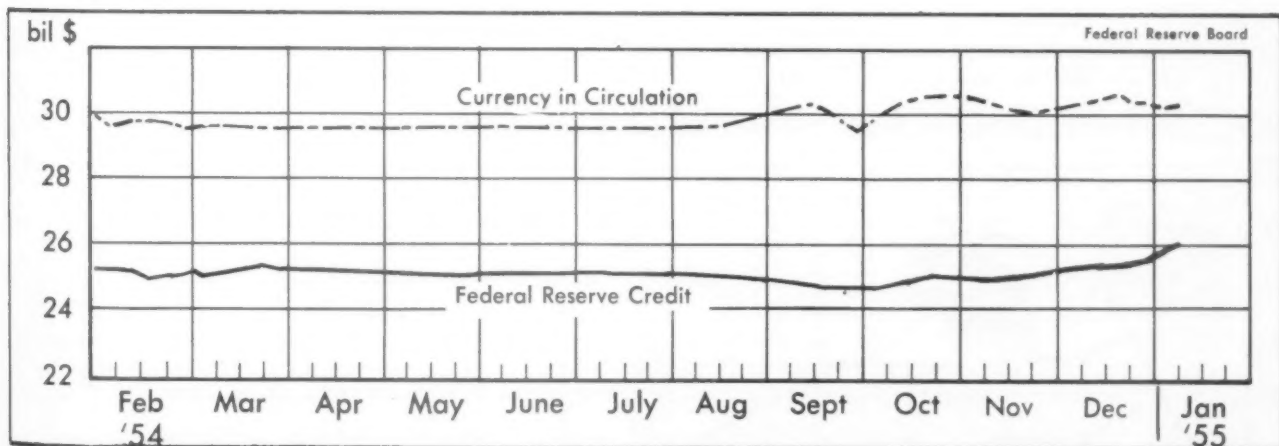
	BASE	LATEST	MONTH AGO	YEAR AGO	% OF CHANGE IN	
					MONTH	YEAR
Dept. Stores Sales Index (Fed. Res.)	1947-49=100	190	191	163	- 0.6	+16.5
Commercial Failures (Dun & Bradstreet)	no.	152	221	150	-31.3	+ 1.3
Freight Carloadings	cars	529,452	661,797	477,805	-20.0	+10.8
Miscellaneous Carloadings	cars	273,151	348,155	252,841	-21.6	+ 8.0

PRICES



	BASE	LATEST	MONTH AGO	YEAR AGO	% OF CHANGE IN	
					MONTH	YEAR
All Commodities (BLS)	1947-49=100	109.5	110.0	110.1	- 0.5	- 0.6
Farm Products	1947-49=100	90.0	93.2	94.5	- 3.5	- 4.8
Metals & Metal Products	1947-49=100	129.8	129.9	127.6	- 0.1	+ 1.7
Structural Products	1947-49=100	121.8	121.8	120.8	0	+ 0.8
Steel Billets (Pittsburgh)	net ton	\$64.00	\$64.00	\$62.00	0	+ 3.2
Steel Scrap, heavy melting, Pitts	net ton	36.50	33.00	30.50	+10.6	+19.6
Copper, electrolytic	lb.	.30	.30	.30	0	0
Rubber (rib-smoked sheets)	lb.	.32 ³ / ₈	.28 ⁵ / ₈	.20	+13.1	+58.9

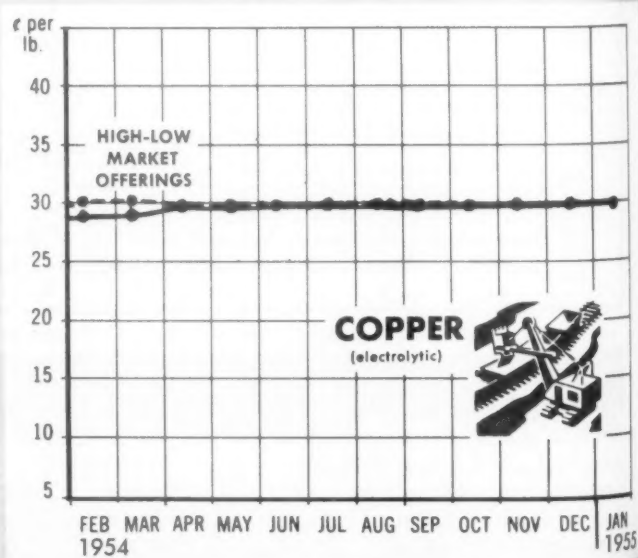
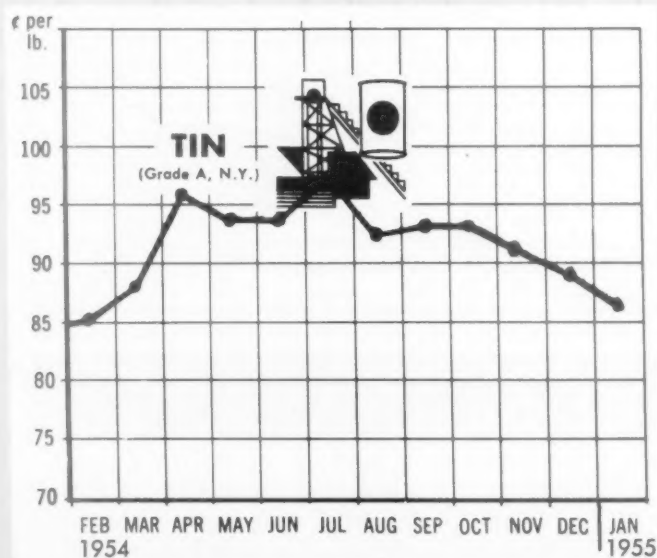
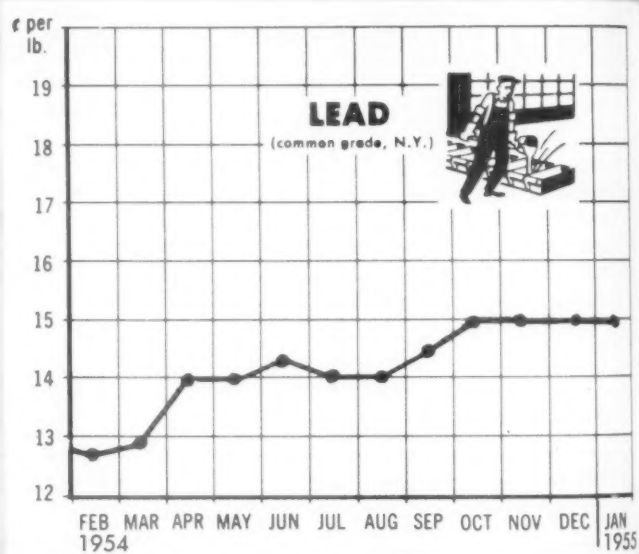
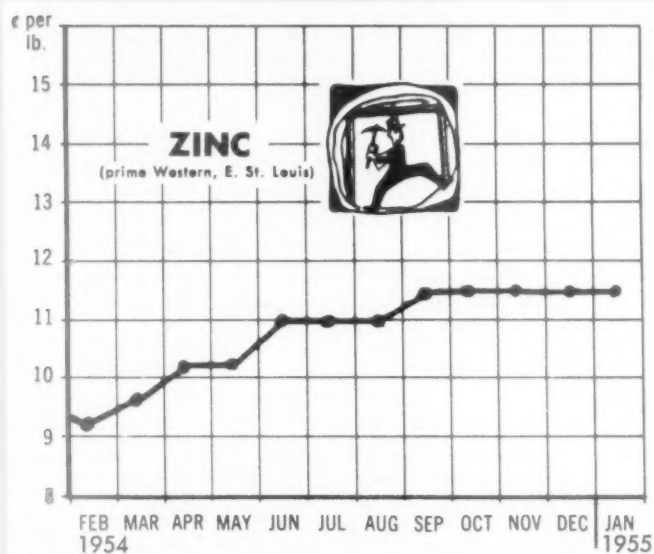
FINANCE

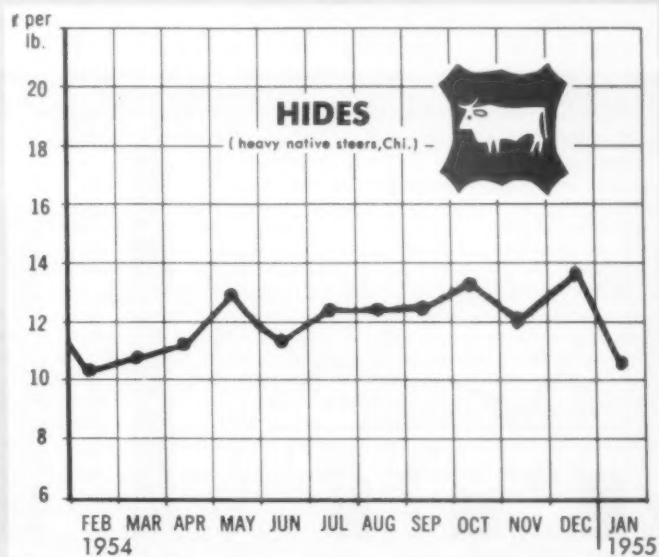
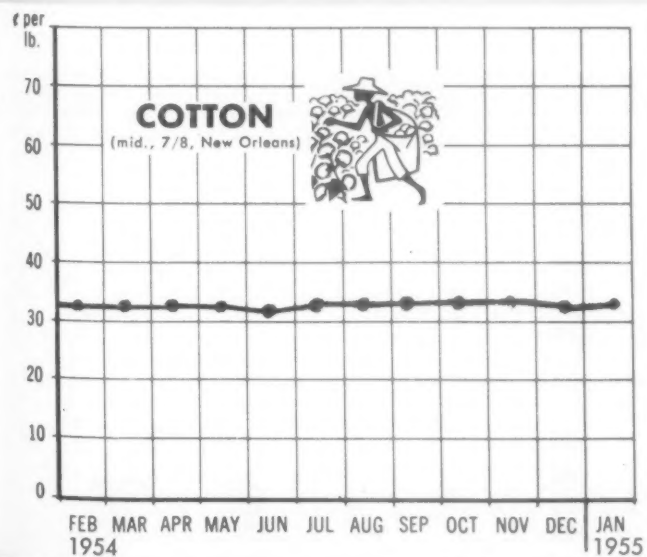
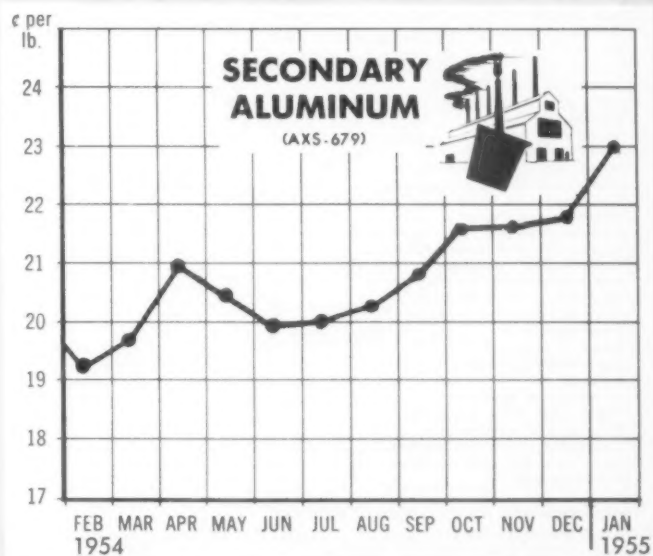
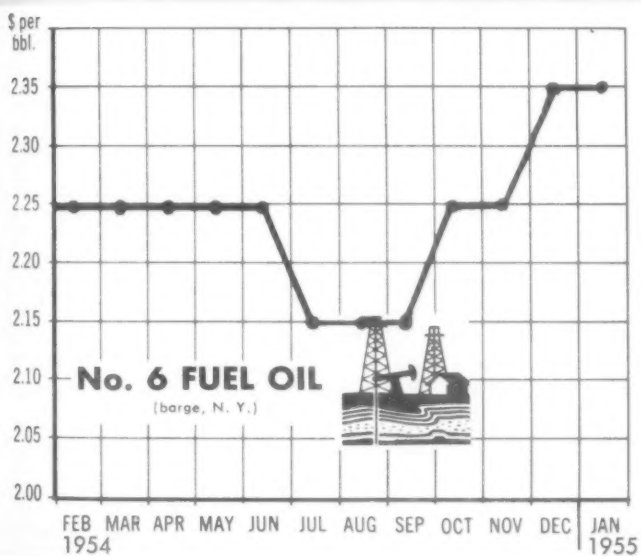
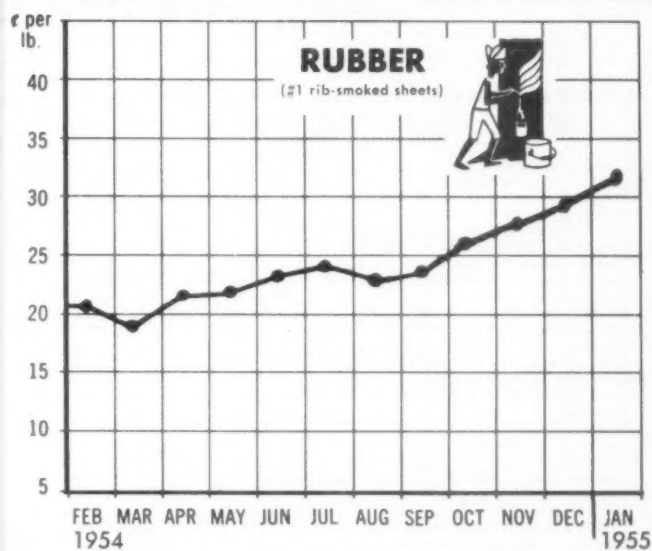
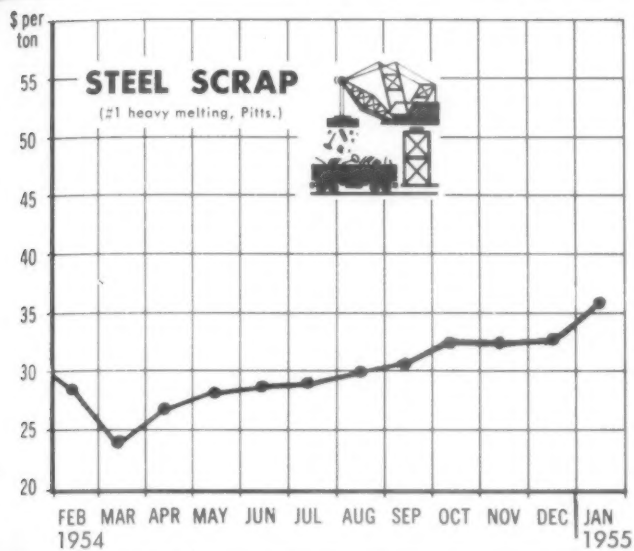


	BASE	LATEST	MONTH AGO	YEAR AGO	% OF CHANGE IN	
					MONTH	YEAR
Stock Prices (Standard & Poor's)	1926=100	278.2	275.5	199.0	+ 0.9	+39.8
Bank Clearings (New York)	mil \$	12,424	9,590	10,560	+29.5	+17.6
Federal Reserve Credit	mil \$	26,207	25,858	26,519	+ 1.4	- 1.2
Currency in Circulation	mil \$	30,434	30,697	30,591	- 0.9	- 0.6

Upward Price Pressures Being Exerted On Some Commodities

Over-all price levels remain relatively stable, despite movements in individual commodities. Upward pressure is being felt in metals, however. Aluminum prices have already risen, and there is wide anticipation of higher domestic prices for copper. The red metal is already selling at 36¢ a pound in the London market, and increased stock-piling and labor unrest in African and Chilean mines are expected to keep the supply unsettled. Other commodities in which prices may go up in the next month or two are synthetic rubber and fuel oil.





THE PULSE OF BUSINESS

Sales, Inventories and New Orders

Value of Manufacturers' Sales
Seasonally Adjusted
(Millions of Dollars)

All Manufacturing industries	24,256
Durable goods industries	11,867
Primary metals	1,874
Fabricated metals	1,150
Electrical machinery	1,324
Machinery (except electrical)	2,068
Motor vehicles & equipment	1,918
Transportation equipment (exc. motor vehicles)	925
Furniture and fixtures	334
Lumber products (exc. furniture)	723
Stone, clay and glass products	583
Professional, scientific instruments	402
Other industries, incl. ordnance	566
Nondurable goods industries	12,389
Food and kindred products	3,771
Beverages	635
Tobacco products	339
Textile-mill products	1,006
Apparel	835
Leather and products	251
Paper and allied products	709
Printing and publishing	778
Chemicals and allied products	1,606
Petroleum and coal products	2,113
Rubber products	346

Book value of Manufacturers' Inventories
Seasonally Adjusted
(Millions of Dollars)

All Manufacturing industries	46,909
Durable goods industries	26,975
Primary metals	3,488
Fabricated metals	3,145
Electrical Machinery	3,489
Machinery (exc. electrical)	5,735
Motor vehicles & equipment	3,377
Transportation equipment (exc. motor vehicles)	2,700
Furniture and fixtures	670
Lumber products (exc. furniture)	1,090
Stone, clay and glass products	878
Professional, scientific instruments	882
Other industries, incl. ordnance	1,521
Nondurable goods industries	19,934
Food and kindred products	3,511
Beverages	1,129
Tobacco products	1,789
Textile-mill products	2,543
Apparel	1,845
Leather and products	570
Paper and allied products	1,050
Printing and publishing	776
Chemicals and allied products	3,107
Petroleum and coal products	2,747
Rubber products	867

Manufacturers' New Orders (Adjusted)

All Manufacturing industries	21,594
Durable goods industries	9,631
Nondurable goods industries	11,963

1953	1954				
Nov.	July	Aug. (r)	Sept. (p)	Oct. (p)	Nov. (p)
24,256	24,055	23,482	23,677	23,377	24,606
11,867	11,287	10,952	10,974	10,789	11,680
1,874	1,528	1,468	1,519	1,536	
1,150	1,184	1,144	1,122	1,076	
1,324	1,318	1,276	1,336	1,245	
2,068	1,920	1,838	1,868	1,820	
1,918	1,800	1,774	1,563	1,419	
925	1,061	949	963	1,028	
334	300	311	317	322	
723	684	688	726	775	
583	608	597	612	643	
402	354	331	362	366	
566	530	576	586	559	
12,389	12,768	12,530	12,703	12,588	13,143
3,771	3,748	3,785	3,816	3,716	
635	682	582	618	623	
339	301	306	309	294	
1,006	1,040	1,023	1,034	1,043	
835	938	909	872	932	
251	377	349	340	322	
709	753	742	734	731	
778	746	751	787	797	
1,606	1,675	1,686	1,759	1,717	
2,113	2,134	2,060	2,097	2,079	
346	374	337	n.a.	n.a.	
46,909	44,194	43,929	43,637	43,773	43,814
26,975	24,383	24,232	24,105	24,372	24,410
3,488	3,107	3,082	3,066	3,081	
3,145	2,773	2,759	2,735	2,805	
3,489	3,049	3,041	3,018	2,989	
5,735	5,097	5,101	5,055	5,009	
3,377	2,899	2,790	2,762	3,003	
2,700	2,622	2,695	2,712	2,761	
670	664	656	671	678	
1,090	958	944	948	975	
878	883	866	870	876	
882	862	850	835	828	
1,521	1,469	1,448	1,433	1,367	
19,934	19,811	19,697	19,532	19,401	19,444
3,511	3,468	3,437	3,406	3,410	
1,129	1,222	1,198	1,160	1,143	
1,789	1,930	1,912	1,861	1,855	
2,543	2,376	2,383	2,368	2,331	
1,845	1,760	1,766	1,740	1,694	
570	580	567	561	570	
1,050	1,021	1,007	1,020	1,047	
776	734	735	759	706	
3,107	3,146	3,147	3,101	3,075	
2,747	2,790	2,784	2,795	2,766	
867	784	761	n.a.	n.a.	
21,594	22,551	22,560	24,183	23,974	24,547
9,631	9,700	9,978	11,341	11,506	11,863
11,963	12,851	12,582	12,842	12,468	12,771

p—preliminary

r—revised

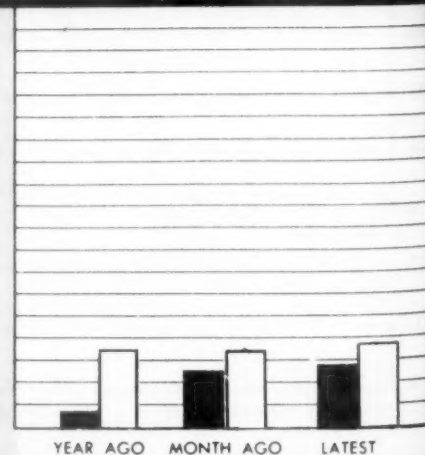
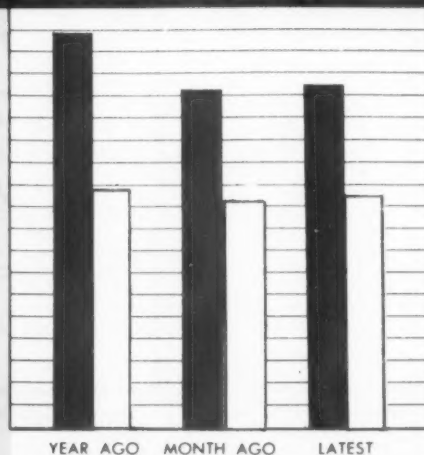
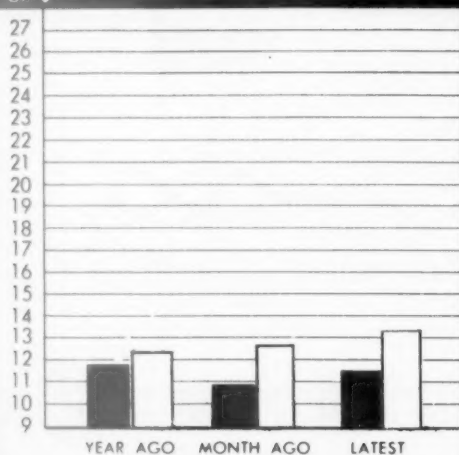
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BILLIONS
OF \$

SALES

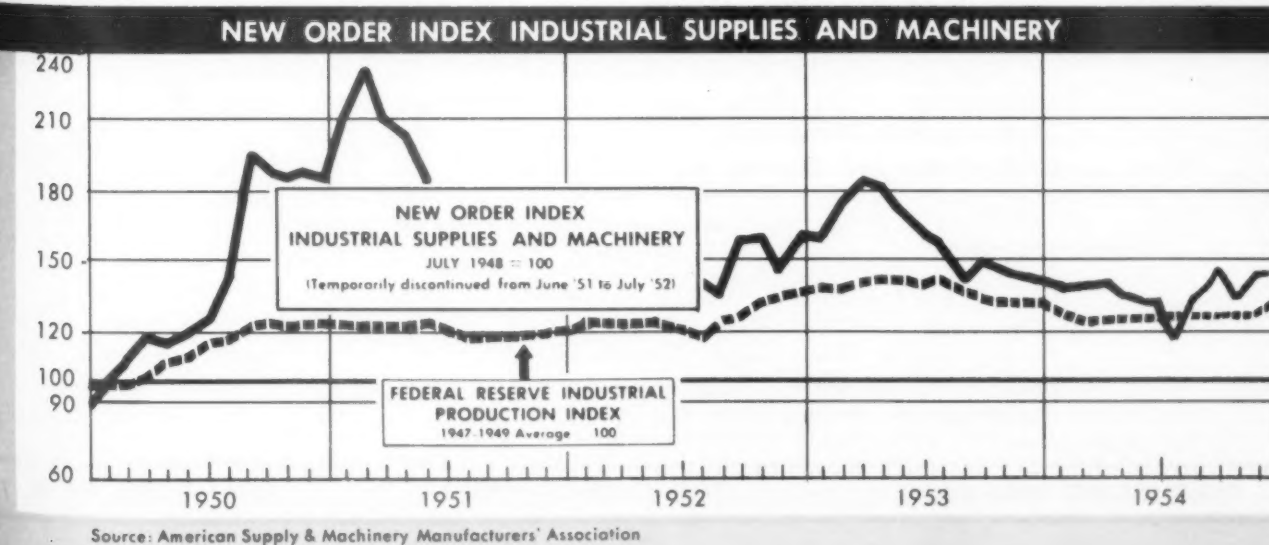
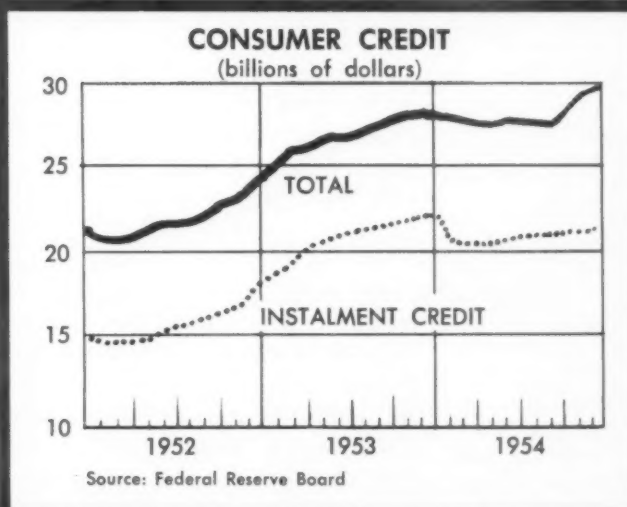
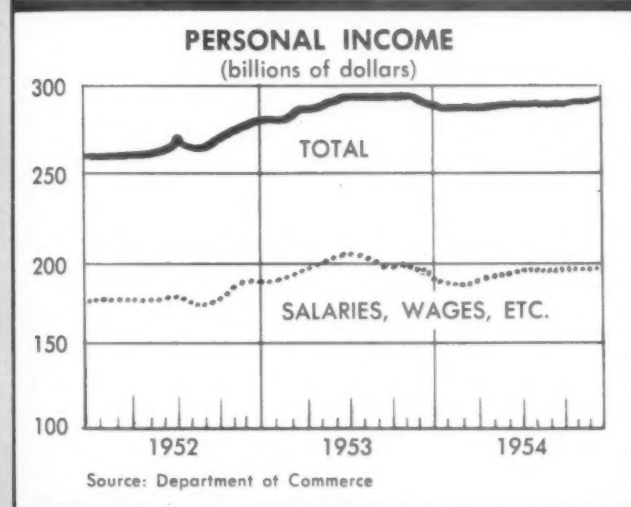
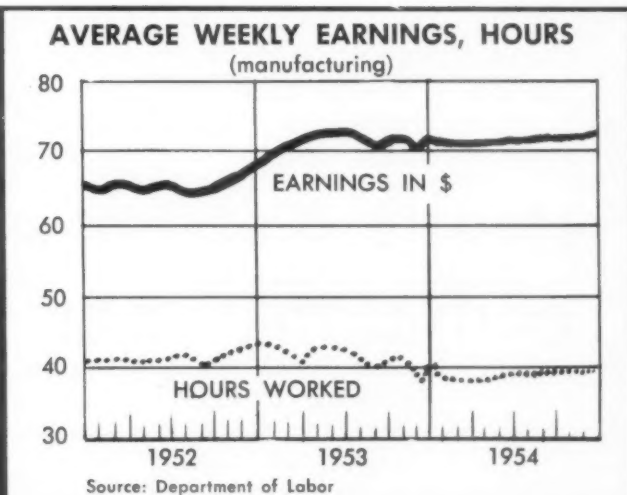
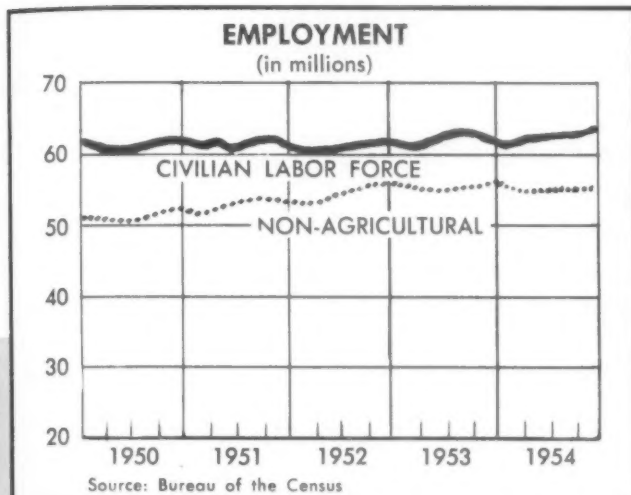
INVENTORIES

NEW ORDERS



DURABLE GOODS

NON-DURABLE GOODS



Straws in the Trade Wind

PAPERBOARD OUTPUT SPURTS - One of the best barometers of the economy's health is production of paperboard which is used to package almost every type of product. At mid-1954, output was 5% off its year-ago pace. Pick up in last half of 1954 pushed production to within 1% of 1953. Industry leaders believe 1955 will be their best year ever.

RAILROAD TRUCKING GROWING - Railroads are out to recoup business lost to highway haulers by meeting them on their own ground, with trucks. They are seeking permission from ICC to replace high cost local freight trains with trucks. Movement to trucks is growing in all areas. Three railroads alone, the Southern Pacific, Santa Fe, and Rock Island, now operate more than 4500 trucks in inter-city service.

NEW HIGHS FOR ELECTRICAL INDUSTRY? - Record construction activity and continued prosperity may carry the electrical manufacturing industry to new highs in sales this year. The National Electric Manufacturers Association reports industry shipments during 1954 were \$15.6 billion - off 5% from 1953. Sparking the recovery will be (1) new appliances for which markets are not saturated and (2) end to inventory liquidation which hurt manufacturers' sales in 1954.

STEELMAKERS CONTINUE OPTIMISTIC - Although their estimates of 1955 output vary considerably, steel company heads all predict higher steel production this year. Most conservative is U. S. Steel's Benjamin Fairless, who estimates 1955 production at 95 million tons - up 7 million tons from 1954. More optimistic is Jones & Laughlin's Ben Moreell. He predicts that the industry may produce as much as 111 million tons. Basis for steelmakers' optimism is belief that inventories of fabricators are as low as they can get and that industrial output will continue recovery from its 1954 low.

ALUMINUM REACHES FOR NEW MARKETS - Continued growth in civilian applications of the light metal is expected by R. S. Reynolds, Jr., president of Reynolds Metals. Production of primary aluminum in 1954 of 1,460,000 was 16% higher than the record-breaking tonnage in 1953. This year, output is slated to climb further. Particularly promising are new applications in construction, packaging, and electrical conductors.

COAL AT BOTTOM? - After finishing one of its worst years in history, the coal industry is now hopeful that better times are ahead. Last year's production was 385 million tons - off 17% from 1953. Some 1000 marginal mines were closed and prices dipped as low as \$4.91 per ton. Hope for the future lies in increased mechanization of mines and higher output in the coal-using steel and electric power industries.

15 ways

in which Advertising affects Purchasing and Distribution

By William M. Dugdale

Address at a meeting of the Purchasing Agents Association of Washington, D.C.

PURCHASING and advertising represent widely separated areas of business. You buy the materials, and I help sell them. Both are equally important. I can't sell merchandise not made from quality materials at a competitive price. You wouldn't get a pay check if the product made from the materials you purchase didn't sell.

So we have a premise upon which we can all agree. We must make good merchandise at a good price, and we must sell that merchandise. Our ultimate goal is profit. We in the selling end of business must realize that sound purchasing has a direct bearing on sales and profit. You in the purchasing end of business must realize that profit can be realized only when the product is sold.

There's an adage in our business, that business profits don't come from making things; profits come from selling the things that business makes.

A Creative Force

So let's chalk up the first, basic way advertising affects your job:

it helps move the merchandise, product, or service for which you move materials.

And that can be a very far reaching effect. Suppose you work for a utility; let's examine for a minute the way advertising affects the business of producing power. Think, for instance, what a tremendous effect the increasing use of gas and electric appliances has had, doubling and tripling the home consumption of power. Think what a tremendous part advertising has played in increasing the use of appliances, so that the job of purchasing for a utility is today a much bigger one than it was twenty years ago.

Or look at the broad aspects of the effects of advertising on *everybody's* job. Where would you and I



Photo by Holmes I. Mettee Studio

WILLIAM M. DUGDALE is Vice President of Van Sant, Dugdale & Co., Inc., advertising agency, Baltimore, Md. He is a graduate of the Wharton School of Commerce and Finance, University of Pennsylvania, and worked in the sales departments of Black & Decker and Crosse & Blackwell before entering the advertising field.

Advertising is one of the great business forces at work helping to make the purchasing agent's job a bigger one, and helping the buyer to do a better job.

Too often, advertising is taken for granted, or is discounted as a strictly promotional activity. But basically, advertising is an important and effective means of communication that has developed mass markets, made mass production possible, and set up economical channels of distribution.

In this article, the author lists 15 specific functions and services of advertising that the purchasing agent should be aware of. Don't let poor reception void the message that the advertiser has for you.

be without advertising? We wouldn't drive as many automobiles, use as many appliances, eat as much frozen food, use as much color in our homes, do as much traveling. We just wouldn't spend as much money — and conversely, we wouldn't make as much money. Prosperity depends on turnover of the consumer dollar. If we all were to put our money in the bank, and not buy new cars, new homes, new hats, new TV sets, we'd very soon slip into business depression. Your job and mine wouldn't be nearly as good—if we had any job at all.

Advertising is one of the great forces keeping money at work, raising the ambitions and desires of the public for new and better things, a higher standard of living. Advertising is communication, mass produced, a brain child of our mechanized civilization. And although in mechanization we may have lost a few grains of individuality, we have gained a great deal more in individual well-being.

Specific Contributions

Now let's examine some of the things that advertising has done affecting the manufacturing, distribution, and purchasing of goods.

1. Advertising makes possible better merchandise at lower prices. This is a mass production era. Advertising creates mass production, thereby reducing costs and putting within reach of the average American consumer all manner of household, office, and factory conveniences. Mass production is of no value without some means of telling people about it, of making people want to pay for and use it. For example, in 1905, a 60 watt lamp, unadvertised, sold for \$1.75. Now, partly through effects of advertising, it sells for 15¢.

2. Advertising helps cut the cost of distribution. It makes it possible for the manufacturer to contact more distributors, dealers, customers — more production managers, purchasing agents, plant foremen — in more places, more quickly — and to secure quicker action as a result of that contact than any other method of communication he can use.

How much does it cost to contact readers of the trade paper, for example? A recent study shows the cost per known contact ranging from 0.8c for the best ad to 2.3c for the least effective. Even the poorest ad costs a lot less than the average cost per contact by salesmen, re-

ported recently as \$16.31 in the industrial field.

Advertising is the best means for the mass distribution of ideas that must precede the mass distribution of merchandise. (I don't mean to imply that personal selling is not necessary, nor that advertising can replace retailing as a physical means of making merchandise visible and touchable.)

3. Advertising pre-sells known brands. It is a means of presenting merchandise, and producers, in a favorable light. In the pre-selling process in advertising there is no cost of salesmen, no cost of heavy inventories, no necessity to carry the merchandise to the buyers in order to convince them to buy. The industrial advertiser shows the buyer a picture of his product at work. He gives testimonials of satisfied users who have increased the efficiency or profit of their operation through the use of his product.

Advertising has the advantage of reaching people at their leisure. It gets in to see people whom salesmen cannot reach. It has the advantage of reaching people in association with other advertisers, where the buyer is able to choose from a wide variety of advertised items.

4. Advertising makes markets. It has the power to create desire to own where no desire existed before. It moves people into new ways of doing things more easily, more safely, and more pleasantly. It has a way of breeding healthy dissatisfaction. It shows how the old way isn't good enough, and creates a desire for better, more fruitful, more efficient ways of doing things.

5. Advertising is the vehicle through which our industrial know-how is spread and augmented in war and in peace. During World War II, advertising in industrial publications played a very essential informative role. Suppliers used advertising to



"I like the way Wilkins follows up an order."

warn of shortages. Manufacturers used it to suggest substitutes for critical materials. Machine tool and equipment suppliers used it to teach customers how to make available equipment last longer. Industries found new uses for advertising in training quickly the vast new armies of production workers. And now, industrial advertising is performing the vital task of channeling know-how into the plants where it is needed to maintain the efficiency of our big and little industries.

6. Advertising helps set up the channels of physical distribution, and keep them streamlined. The normal flow of merchandise from manufacturer to distributor, to retailer or user, is guided by advertising all the way. It tells tradesmen the facts about the goods, helps them decide which items will sell best in their trading areas, shows them how to get the most value out of the consumer advertising placed behind national brands. Merchandising know-how is passed down the line through advertisements in merchandising papers, direct mail of all kinds, films, etc.

7. Advertising speeds the introduction of new products that are needed. This applies both to the manufacturer who is just cutting his eye teeth as an advertiser, and to the advertiser of an established line who is adding to it. It quickens the acceptance of new items, and at least cost. Many fine examples of the speed with which advertising introduces new products lie in the pharmaceutical field, where the lag between medical discovery and medical treatment has been almost completely abolished.

8. Advertising is a competitive weapon, both for the newcomer and the established concern. It keeps competition open, out where people know who's making what, and what the price is, where it is for sale, what its advantages are. It exposes the points of product competition. It gives everyone a chance to tell his story.

9. Advertising protects against destructive price competition. During periods of price wars, where quality and stability of future production are disregarded by the price-cutter, the advertised brand has a decided advantage. By holding the price line, telling the public why, and continuing to stress quality at a fair price, the manufacturer can win out.

10. Advertising helps stabilize a business. The advertiser is able to invest part of the proceeds of his most profitable business years in building up a consumer desire that can be tapped in later years when his market may be depressed. By the same token, he has available the means of stimulating more sales activity quickly when any part of his market tends to slow down. It helps him eliminate seasonal slumps, thus leveling off his production.

11. Advertising smokes out new prospects. So-called "search advertising" can help a manufacturer find out where his market is. Market research can determine where most of the sales potential for a product lies, but it cannot locate all of the unusual sources of sales. One of the many examples from the industrial field is the split-run advertising placed by Koppers Company when it was first seeking prospects for VMU, a whitening agent used in manufacturing. The ads suggested possible uses of the product, and secured inquiries from manufacturers in many fields, some of which Koppers had not thought of as prospects.

12. Advertising covers marginal sales territories. It releases salesmen for selective selling where it is unprofitable to contact some of the low-volume outlets through personal selling. Advertising can reach in and do a selling job at considerably less cost. Mail order advertising has been used to great advantage in replacing direct sales contact in thin markets.

And advertising keeps "sold", between calls, those in-between territories where salesmen call, say, three or four times a year—a most important consideration in contacting industrial purchasing agents as well as the buyers of consumer goods.

13. Advertising reaches the prospects who won't see a salesman. Many doors are closed to salesmen. Some buyers refuse entry to the representatives of companies they have never heard of. But advertising can get behind these doors and into these offices, and by establishing name recognition it can open the door to sales.

14. Advertising helps procure the best in materials and manpower. Competition for "top dog" position in any market calls for competitive enterprise in all departments, not

just selling. As purchasing agents know so well, success also lies in securing the very best materials and manpower at fair prices. In this sphere of competition for the ingredients that are needed, advertising plays another important part.

Companies that are known are the ones that producers of new materials contact first. And the inventors and idea men of all kinds do the same thing. The result is that the better known a company is, the more likely it will be to get first crack at all the new developments—and will continue to stay ahead of the field in use of new and better materials and inventions.

Companies that advertise tend to acquire the best reputation for stability. So, the company that is a well known advertiser has the advantage of attracting the most alert, ambitious, and skillful employees.

15. Advertising increases the capital value of a business. Companies that advertise consistently find it easier to borrow money at low rates for business expansion, plant improvements, development of new products and markets. Bankers realize that their funds are safer when invested with companies that have sound product and public relations campaigns. They know that good product advertising assures a continued market, and that good public relations advertising helps stabilize operations. And it goes almost without saying that stocks of companies that advertise are the most valuable—not just because the company name is better known, but because advertising increases sales, reduces sales costs, and contributes to more and faster profits.

This summary has by no means exhausted the list of functions and effects of advertising, important to all of us. I have not touched upon how it helps preserve our private enterprise economic system and government. Nor have I mentioned the things that advertising pays for, which we don't often think of—the magazines that help us on our jobs, the newspapers that keep us in touch with affairs, the radio and television we enjoy.

Most of the things we work with, the things we wear, the food we eat, our transportation, the entertainment we enjoy in our leisure hours—all of these things are affected in one way or another by advertising. Because of it, we all have better jobs and live in a better world.

Ductile iron parts can be machined like soft iron, yet may have mechanical strength comparable to that of cast steel.



Purchasing Ductile Iron

Unique properties are winning wide acceptance for this relatively new material in a variety of products

By Keenan Goodman, Purchasing Agent, Research Associates, Los Angeles

ALTHOUGH they have been on the market for about five years now, ductile iron products still have many money-saving applications which have been overlooked.

This is probably due to the fact that ductile iron is a workhorse, rather than a "glamor metal". It won't do anything that other metals can't do, in most cases, but it can serve the purpose of numerous ferrous and non-ferrous materials at substantially lower prices.

For example, ductile iron castings are now being specified by P. A. Don Osborne of Malabar Manufacturing Company at San Leandro, Calif., for the production of many components that would normally be made from steel and other ferrous materials (due to the high quality

specifications that must be observed in the manufacture of hydraulic jacks for railroads, the aircraft industry, etc.). Why?

"Aside from the fact that ductile iron has as much mechanical strength as suitable grades of steel, and will bend or twist without breaking," Osborne explains, "it costs us about 11¢ per pound less than other materials and reduces our machining expenditures by a margin of approximately 15%."

Some difficulties were experienced with the first ductile iron castings, because some actually weren't ductile. However, this was the result of inadequate quality control measures—a factor that has now been eliminated for most practical purposes by the adaptation of well-known

Meehanite controls to the task of producing such castings.

An important point to bear in mind when comparing ductile iron with other materials is the fact that the former may cost more in the as-cast condition, and yet save money by virtue of its processability.

For instance, Pacific Industrial Manufacturing Company at Oakland, Calif., now pays more for ductile iron castings than was once spent for comparable steel casts in the manufacture of low-pressure cylinders for hydraulic press brakes because the machinability of ductile iron is such that the company saves about three hours (or \$10) in the process of finishing each cylinder.



Ductile iron castings must be protected against corrosion (usually by cadmium plating) when used in assemblies with nonferrous parts.

It is further worth noting that ductile iron castings, procured in the annealed condition, may be satisfactorily processed and utilized without a supplemental heat treatment. This is one of the more important reasons why such castings are now being specified for the fabrication of spinning lathe chucks, laminate layup molds, and related types of permanent metal tooling by Douglas, Northrop, Boeing, and other firms in the western aircraft industry.

Corrosion resistance is a factor that indicates the use of ductile iron in some circumstances where cost alone is not the most important consideration. For example, Luther Smith of Smith-Blair, Inc., at South San Francisco, Calif., now specifies ductile iron castings in place of copper and bronze casts for the manufacture of water pipe fittings—not just because ductile iron components cost less, but because they have superior resistance to corrosion when they are assembled with steel pipe.

Like all ferrous materials, ductile iron parts have an electrochemical tendency to corrode in the presence of dissimilar metals. This is a definite drawback from the cost viewpoint, since it means that ductile iron components must be cadmium plated or otherwise protected against

corrosion if they are incorporated in assemblies comprising nonferrous parts.

However, Earl Pearson of Rotex Punch Company at San Leandro, Calif., has found that it is sometimes worthwhile to pay the extra cost of preventing corrosion in ductile iron parts for the sole purpose of maintaining higher quality standards. Pearson's company uses ductile iron castings (instead of the brass and aluminum casts employed by competitors) in the manufacture of

clevises and brackets for air and low-pressure hydraulic cylinders.

"The ductile iron parts don't cost too much more than nonferrous components, even after they are plated," Pearson says, "because they are so easy to machine. And, in the finished condition, they are less susceptible to breakage than cast brass or aluminum parts because they lack brittleness."

As previously indicated, ductile iron won't ordinarily do anything that other metals can't do. But let's not overlook that qualifying word, "ordinarily".

The fact that ductile iron may have a number of unique applications was clearly demonstrated by P. A. Sam Hartig of Western Sound Company, Los Angeles, after he recently suggested the use of ductile iron castings in place of high-silicon steel casts in the manufacture of parts for high-fidelity magnetic speakers.

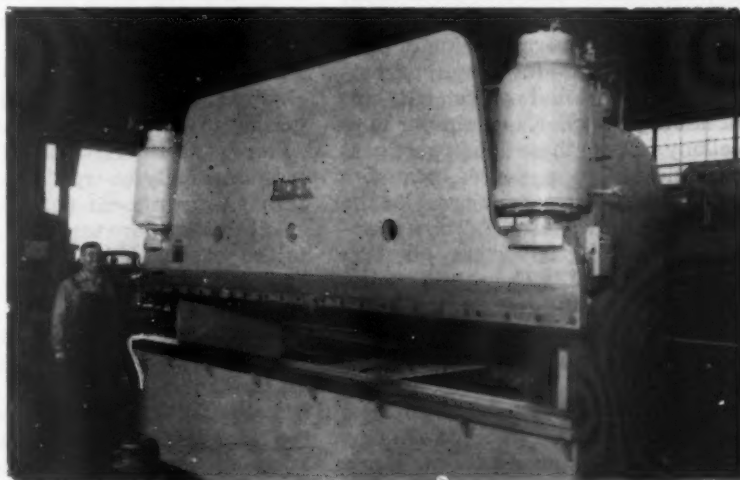
Hartig made his suggestion for the sole purpose of reducing production costs, and company engineers were quick to point out that ductile iron lacked the magnetic flux flow qualities of high-silicon steel.

"How do you know?" Hartig asked. "I haven't been able to find any data on the subject myself."

The engineers were surprised to find that they too lacked data. So they decided to conduct a series of tests.

"You might say their guess was a good one in a way," Hartig recalls. "Ductile iron doesn't have the magnetic properties of high-silicon steel. But, fortunately for us, it does have magnetic properties that happen to be much better for our particular application."

In the two vertical cylinders of this press brake, ductile iron castings have replaced steel because of substantial savings in machining time.



Measure Purchasing Performance in Terms of Profits

The vital statistics of purchasing are expressed in dollars and cents—not in processing of paper work

By J. Spivack

Melpar, Inc.
Alexandria, Va.

WHAT does management really know about the performance of its purchasing department? What should purchasing include in its reports to management, to convey the significant information?

Many purchasing men, as well as many among the top echelon "brass", compile quantities of statistics that are supposed to reflect the work of the purchasing function and to provide a measure of its results. Actually, these data are more likely to be a mass of minutiae and trivia, meaningless detail.

We see such figures as the number of requisitions processed, purchase orders issued, average value of purchase order, productivity per employee, total dollars expended, cost of issuing an order, and similar miscellany. Are these the pertinent yardsticks? To a degree, statistics like this provide some answer to the question "How much?" They overlook the more important question of "How well?" They ignore the functions which are at the very root of good purchasing—decision making, knowledge of various marketing activities (i.e., prices, quality, supply sources), inventory policies, stores procedures, public relations, scheduling and smooth coordination.

Instead, undue weight is assigned the quantitative approach.

This approach tends to set up false goals in the operation of a purchasing department. It sets up false and inadequate impressions in management. Effective internal control of the purchasing unit is of course essential, but it is a relatively trifling matter when considered against the background of the over-all condition and health of a particular business organization. We should be able to assume safely that, with reasonable supervision, the individual employee is handling the mechanics of orderly paper work efficiently.

The basis for this assumption is the fact that the individual selected to head the procurement unit has probably been screened very carefully, and has been thoroughly exposed to work performance standards. Further, since he has been assigned an important trust, and charged with the responsibility of getting the fullest value out of each dollar spent, it follows that this holds true internally as well as in his external procurement activities.

Let us therefore turn our attention to the way in which we can convey to management the specific and significant contributions made by purchasing to the healthy state of the business. It is not necessary to trumpet the message in loud or argumentative tones. Instead, what we need is a simple, condensed, yet adequate presentation of facts. This

task can be undertaken without any undue expenditure of time or massive record keeping.

The Profit Measure

The most important step is to convert all activities into terms that reflect their real meaning in attaining the over-all objectives of management. There is no single term that commands more attention and respect in the world of industry and commerce than does "Profit". That is our cue. We should illustrate, factually and forcefully, how purchasing contributes to more profitable operation.

For some activities, the profit measure is obvious and almost automatic. For example, in a company that operates at a net profit of 7% on sales, the report of dollar sales volume speaks for itself. Management sees that \$7 profit in every \$100 sale reported.

On the other hand, management is quite likely to look upon purchasing as primarily as a cost or expense item, and we encourage that view when we emphasize the quantitative factor of expenditures in our reports. Yet constructive, cost saving purchasing contributes just as significantly to ultimate profits. This old weapon of "Savings" can be wielded to yield new results and make deep impressions. Translate this tired old word into the more positive concept of "Profit", and an eager audience is prepared to listen.

Which Kind of Report



*speaks in terms of management's concern?
reflects the significance of purchasing?*

Statistics
Work Load
Paper Work
Office Efficiency
Requisitions Processed
General Summary
Routine Performance

OR

Profits
Dollar Savings
Product Improvement
Better Buying
Values Procured
Specific Cases
Constructive Policies

The \$7 saving effected by purchasing is equivalent, in dollars and cents profit, to \$100 worth of sales. It may be even more important, in helping to make additional sales possible. We need not belabor this argument in our reports, but at least we can present the accomplishment in specific terms of dollars and cents, as profits. Applying this principle to events which are almost everyday occurrences in the business of purchasing, we obtain some startling and attention-getting results.

Make or Buy?

Recently, the subcontract buyer made a careful analysis of a machined part which was being fabricated in our shop. This involved cutting an Acme thread on a Jack screw. The piece was 18" long and 3½" in diameter. Unit cost of machining this piece was \$33. Since 1,200 pieces were involved, this represented a sizable sum of money.

Because the buyer had a comprehensive knowledge of our equipment, the skills (and limitations) of our employees, he felt that perhaps it might be more advantageous to subcontract this job to a shop that had more adaptable equipment and greater experience in producing similar parts. Accordingly, quotations were requested from several likely sources. The result of this investigation showed that these necessary parts were obtainable at a cost of \$19 each. In view of the fact that

this action was initiated at the suggestion and advice of the purchasing department, it is not too presumptuous to assume that purchasing was responsible for the resultant savings.

In plain dollars and cents, there was a saving of \$14 per unit on this article. For the full quantity of 1,200 pieces, the net saving (or profit) amounted to \$16,800. Assuming a 7% profit ratio, it would have required a sales order of \$240,000 to produce a corresponding profit—an order that would assuredly have earned enthusiastic commendation for the salesman.

The history of this procurement is recorded on a simple index card. At the end of each quarter, these cards are individually presented, and totaled for net results. The report is graphic, cumulative, impressive. So, in the same way that sales records are reviewed, purchasing performance is examined in a like manner.

The benefits derived from this type of record keeping serve a two-fold purpose. Memories, names, and figures that formerly became vague generalizations under the stress of new problems and projects, now stand out with dramatic intensity. Secondly, the record serves to stimulate an eagerness on the part of purchasing personnel to equal or surpass previous records. To return to our analogy, savings are pursued with the same determina-

tion and persistence that a successful salesman applies to a promising prospect.

Product Improvement

Of course, many of the most important accomplishments of good purchasing do not necessarily fall in the area of price considerations. The competent purchasing man does not seek to reduce costs blindly, at a sacrifice of quality, service, or dependability.

An area abounding with opportunity for profitable purchasing scrutiny is that of product and quality improvement. The following case from our records demonstrates how profits can be lurking in almost every sphere of business activity.

An electric heating element was being manufactured at the rate of 12,000 units per month. One component of this equipment was a small neoprene washer (¾" O.D. x ⅛" thick) used to seal out moisture. This part was furnished at a cost of \$2.10 per thousand pieces. The purchasing department felt that a colored plastic washer would improve the appearance of the finished product, and would therefore justify a small extra cost.

Diligent search for possible sources led to numerous helpful talks with sales representatives, and presently uncovered a highly desirable alternate which was available at \$3.50 per thousand. In view of the more attractive appearance, it was

decided to make the change.

Shortly afterwards, a surprising number of new facts came to life. It was found that, at the end of a year, the number of assembly line rejects had dropped by 6% and the number of returns from the field was reduced by 8%—a net 14% reduction in the rejection rate had been achieved without any other manufacturing change or alteration of methods, due to superior properties inherent in the new material plus an improved moisture seal. In summary, an appreciable profit contribution and product improvement had been brought about as a by-product of the original idea of improving the sales appeal of the product.

This case lent itself admirably to a pictorial record and report. A photograph highlighting the better appearance, plus two simple graphs on performance and cost provided a systematic and striking account of the history of this procurement.

Standardization

Another area which can yield rich rewards is in the general field of standardization. A simple illustration on the most elementary level demonstrates the sort of results that are obtainable.

A quantity of 5,000 hex head stainless steel machine screws was requisitioned for the purpose of chassis assembly. These screws were quoted at \$12.75 per hundred, with a long delayed delivery date. In the course of regular procedure, this procurement was turned over to a buyer familiar with bolt, nut, and rivet standards. He raised a few questions and made several suggestions, which were adopted.

It was pointed out that by reducing the length of the screw 1/16" it would conform to an industry standard that was more readily available. Further, it was found that only 10% of the total quantity were specifically required in the hex head style; for the balance, the more economical and accessible binder head form was entirely satisfactory. Thus, an important time saving advantage was netted, and a substantial slash in cost effected.

The use of catalog and regular listed stock items offers many profit possibilities beyond the self-evident factors of lower cost and immediate availability. Among these is the smaller range of items required to be carried in inventory, and the smaller stock quantities needed of any one particular item since it is already stocked elsewhere,

on the vendor's shelf. Another important consideration is avoidance of time consuming delays in production due to lack of parts. Such time is irretrievable lost; it can never be recovered. And one of the most serious charges that can be leveled at purchasing is the responsibility for impeding and delaying production.

Reduced inventory investment, savings resulting from use of standard items, and the advantage of design changes to conform to industry standards, are all suitable for reporting and for performance measurement. This is another instance where good intentions and diligent efforts can be supported by specific facts and results.

Marketing Information

We have space here to examine just one more area of purchasing profits. It can be generally described as "Keeping Abreast". The changes which are constantly taking place in the economic situation, taxes, tariffs, labor, and technological improvements, all bring about corresponding changes in prices, materials, design, production methods and schedules, markets, sources, and other factors that make up the purchasing job.

Here's a simple example. Recently, the purchasing department was informed of the need for 1,000 fixed wire wound precision resistors, on a government contract. Current Joint Army Navy specifications listed just one vendor source for this product, though the item was made by several manufacturers. An individual doing a routine purchasing job would, without further question, have gone to the sole approved source to purchase this material.

However, since part of the job of purchasing consists of keeping abreast of current developments, our buyer was aware that this specification had been under review and that certain additions were being made to the list of approved sources. This information was not yet published, but was reliably believed to be imminent. Therefore, when the requirement arose, this buyer made it his business to check with the proper authorities and get the latest listing. As a result of the information he secured, competitive bids were obtained, leading to an important economy measure.

Looking for Pay Dirt

The examples cited in detail here have been selected not for themselves alone, but to indicate four major areas of concentration where

profitable purchasing opportunities may be found:

1. Make or buy
2. Product improvement
3. Standardization
4. Marketing information

Areas like these, and the buyer's competence in exploring them to advantage, provide the real measure of purchasing performance. These fields contain rich veins of pay dirt. But just as in mining, the yield is obtained only by digging. And to continue the simile, it is the ore that is uncovered and brought to the assay office for evaluation (in our reports to management) that tells the real story of an effective purchasing operation.

There are additional rich reservoirs of purchasing opportunity that should not be overlooked. To name a few:

5. Freight
6. Storage
7. Inventory control
8. Production methods
9. Scrap and salvage

To summarize: In order to present the fruits of our purchasing effort to the attention of management in the most meaningful way, we shall do well to observe four basic principles in our work and in our reporting:

I

We must keep our eyes on essentials and major objectives, with emphasis on the larger and more significant aspects of our responsibility.

II

We must report the results of our effort in terms of management interest. The most important factor is that of Profit.

III

We must rely on the eloquence of facts to tell our story of accomplishment. Performance must not be allowed to become fogged by dim memories and generalizations, but must be reported in a specific and thought provoking manner.

IV

We must not permit clumsy, cumbersome reports, loaded with insignificant statistical detail, to dilute and detract attention from the larger meaning and importance of our work.

Let us do a good job, and let us be justly proud of so doing, firm in the knowledge that our recorded information represents the true reflection of our efforts and our accomplishments—our contribution to good management.



Louisville Association's Portable Purchasing Library

Education Chairman C. C. Lee of the Louisville Purchasing Agents Association, with the portable purchasing library developed for Association and University use.

THE Purchasing Agents Association of Louisville offers a facility and service that is probably unique among purchasing associations—at least as to its physical set-up, which is one of its most valuable features. It is a "portable purchasing library", which brings educational and reference material right to the point of use.

The main purpose of the portable library is to make purchasing literature available to the members of the Association and to the class in purchasing at the University of Louisville, which is actively sponsored by the Association. In short, its purpose is "Purchasing Education." It is hoped that the availability of this literature will stimulate thinking and provide the practical incentives for purchasing men to increase their abilities, simplify their administrative tasks, and increase their value and contributions to their respective companies.

The idea was originated early in 1954, by the Education Committee. From its inception, it had the enthusiastic support of all the officers and members of the "Blue Grass" Association, and as soon as Education Chairman C. C. Lee got the "go ahead" signal, with authority to proceed, it was just a matter of a short time before he had plans drawn and the "junior bookmobile" was constructed.

By the time the Association reconvened after the summer recess,

the portable library was a reality. It was unveiled at the September 1954 meeting. This was the first meeting under the current P.A.A.L. administration, and happened to be the first local Association meeting officially addressed by Howard Ahl in his capacity as President of N.A.P.A.

The library contains purchasing magazines, the official publications of the N.A.P.A., and a variety of pertinent material from other sources, some of it suggested or contributed by interested members. At this stage, a major effort is being made to include copies of representative Purchasing Department Manuals.

Specimen purchasing manuals are very valuable to the purchasing man who wants to know how the other fellow is operating his department, and there is a great demand for this type of information. "We feel," says Paul F. Stolpmann, one of the active proponents of the project, "that a lot of expense can be saved those companies that publish purchasing manuals if they will direct copies of their manuals to association libraries rather than to individual purchasing agents. The manuals distributed in this manner will be on constant display for reference, thereby increasing their utilization and perpetuating their usefulness."

"The value of a collection of company purchasing manuals to a purchasing agent charged with the re-

sponsibility of preparing a similar manual for his own company is incalculable. What one manual does not cover in detail can almost invariably be found in another. After the individual purchasing agent has used the Association's collection of manuals, they are returned to the portable library and once again made available to the membership and to the purchasing students at the University.

"How much more realistic and efficient this is, as compared with the case of the individual purchasing agent ferreting out manuals for his personal reference—at considerable duplicated effort to himself and duplicated expense to the cooperating companies—only to discard them when they have served his purpose, or to place them in his archives where henceforth they will not receive even a cursory glance!"

In carrying out this project, the Louisville Association is earnestly soliciting its affiliates in other Associations for recommendations as to purchasing literature and particularly for copies of purchasing manuals. Persons wishing to recommend or furnish material of this sort are invited to contact the Education Chairman—Christian C. Lee, Purchasing Agent, Norton Memorial Infirmary, 231 Oak Street, Louisville, Ky. The Association expresses its willingness to reciprocate with the source information it has already developed.

Recent Legal Decisions Affecting Purchasers

By Leo T. Parker

OBVIOUSLY, court decisions must be in accord with the established principles of law. However, many such decisions are "unusual" in the sense that some circumstances of the litigation are such as to affect the interpretation of the applicable law. Each law suit must of course be decided on the particular circumstances involved.

The several cases reviewed in this article have been selected with this in mind, to help readers avoid expensive and time consuming legal controversies by exercising prudent foresight in the circumstances which may be involved.

Legal Rights

First, I shall review law which clearly illustrates and establishes a dependable rule by which a purchaser may decide whether or not a seller is liable on promises made by his agent or salesman. This is important law because occasionally a dissatisfied seller may attempt to avoid his legal responsibilities by contending that he is not liable for his agent's promises or guarantees, or is not responsible at all for any contract made by such agent. With a dependable legal rule at hand to determine whether or not a seller has made a valid complaint, the purchaser may fortify his legal position by disrupting the seller's contentions against liability.

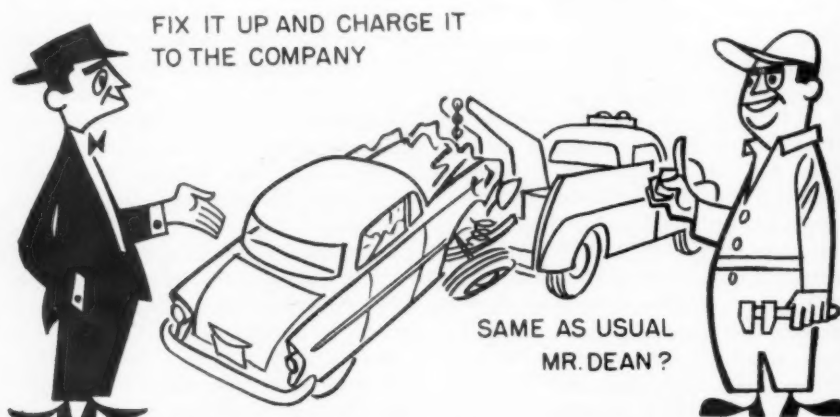
By way of preliminary explanations it is well to state that the courts have laid down positive law that a purchaser may rescind a contract obtained by the seller, or his agent, as a result of direct or in-

direct fraud, misrepresentation, coercion, undue influence, duress, or threats. Moreover, a contract is invalid when made without proper authority of an agent, or employee, or while an authorized employee is mentally deficient, intoxicated, under influence of drugs, or under legal age. Also, certain kinds of contracts are void, and unenforceable, such as those against public policy, prohibited by a state statute, and tending to effect immorality, or

authorized representative. The higher courts have established this dependable rule: In order that a purchaser may rescind a sale contract on the ground of fraud, the purchaser positively must prove the following facts:

(1) There must be proof of the conduct on the part of the seller or his agent which amounted to concealment of material facts from the purchaser.

(2) These facts must have been



IF PREVIOUS AGREEMENTS MADE BY AN EMPLOYEE HAVE BEEN HONORED, HE IS PRESUMED TO HAVE AUTHORITY

having an illegal object. Conversely this same law is applicable to sellers who desire to rescind or avoid liability on a sale contract.

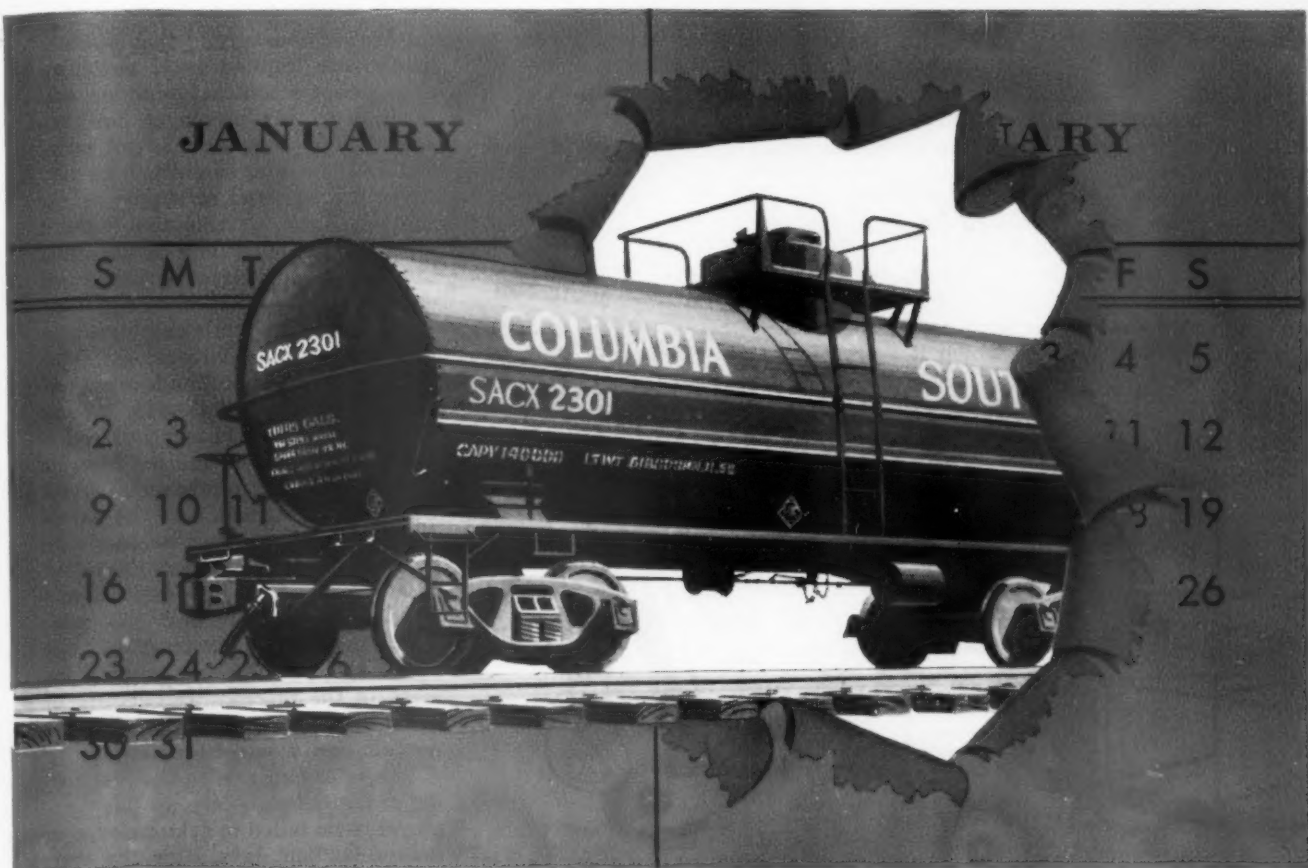
Fraud Liability

Probably the most common legal reason a purchaser may endeavor to cancel a sale contract arises from fraud on the part of the seller, or his

known to the seller or his agent at the time the transaction or sale contract was completed.

(3) The truth concerning these facts must have been unknown to the buyer at the time he signed the contract.

(4) The acts of the seller or his agent must have been done with the intention, or at least with the



WHY WAIT TO CONVERT TO 73% CAUSTIC SODA?

Every day you delay may be costing you money

Several customers who recently changed from 50% to 73% caustic soda said they would have converted sooner but they didn't think the *savings story* applied to their operations.

Perhaps you have not analyzed recently the possible profits from converting to 73%. But don't dismiss the matter lightly, because a little figuring may disclose that you, too, are in a position to realize substantial savings.

This applies whether you are a large user or a small user, and whether you use high strength

directly or dilute it. Actually, savings often apply to some customers who buy solid and flake caustic.

A combination of factors determines how great your savings will be. Location plays an important part. But it costs you nothing to find out. Our Technical Service Department will be glad to assign one of its specialists to discuss your individual case, to make recommendations and to estimate your annual savings.

So why wait? Do it now. Write our Caustic Soda Department at the Pittsburgh office.

COLUMBIA-SOUTHERN CHEMICAL CORPORATION

SUBSIDIARY OF PITTSBURGH PLATE GLASS COMPANY
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Boston • New York • St. Louis
Minneapolis • New Orleans
Dallas • Houston • Pittsburgh
Philadelphia • San Francisco

expectation, that the purchaser will be influenced.

(5) The conduct or promise of the seller or his agent must have been relied upon by the purchaser who was led to act upon it.

Other courts have held that where the seller has good reason to believe that his silence may mislead the purchaser, this is an element of fraud. In *White*, 101 Iowa 457, the court explained that mere silence of a seller in regard to facts which it

nanced was wrecked and he wanted to see if it could be fixed up. The automobile was brought in by a wrecker. No price for the repairs was agreed upon and no estimate made, but the collector told the garage man, "We will see that you get your money." Further testimony showed that at the request of the collector the garage man had done automobile repair work for the finance company on different occasions and that the company

the higher courts hold that a salesman's sole implied legal authority is to accept a contract or order, and send it to his employer for approval. If the employer is not satisfied with the offer submitted, he may reject the proposal or simply refuse to deliver the merchandise without sending the buyer any notification. Conversely, the buyer is privileged to send his cancellation at any time before the salesman's employer acknowledges the order.

For illustration, in *Sanders v. Seaboard*, 230 Pac. (2d) 849, it was shown that a purchaser ordered a quantity of merchandise from a salesman. The purchaser's credit was not established, and the salesman required a money deposit with the order. The buyer gave the salesman the required cash deposit, and both the salesman and the purchaser signed a contract of sale which specified the date when shipment of the merchandise should be made, and distinctly stated that no cancellation would be accepted.

The salesman mailed the contract or order immediately to his employer, who failed to acknowledge or accept it. Ten days after the contract or order was signed, the purchaser decided that he did not want the merchandise. He wrote to the salesman's employer and cancelled the order, and requested that the money he had paid the salesman be returned. The salesman's employer answered this communication but refused to cancel the order, or return the purchaser's deposit. The buyer filed suit to recover the deposit.

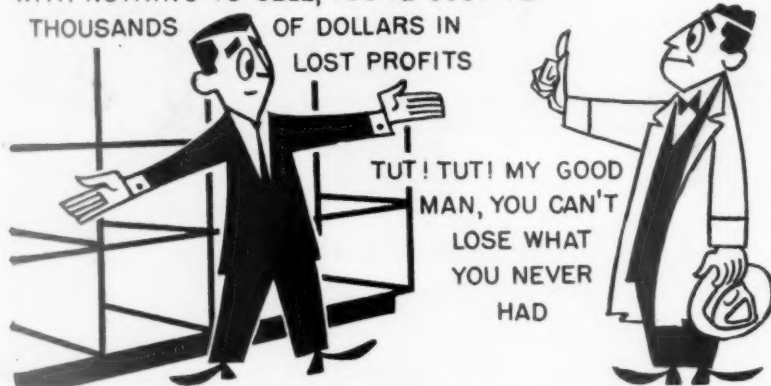
The higher court held the buyer entitled to cancel the order, and that the seller was bound to return the buyer's deposit because no valid contract was completed. This court explained further that a buyer of merchandise always may without liability cancel an order given a salesman, if the cancellation reaches the salesman's employer before the latter acknowledges receipt of the order or accepts the contract.

Order Not Acknowledged

For comparison, see *Willis v. Stone*, 41 So. 675. Here a buyer gave an order to a salesman in September for a quantity of merchandise. The salesman's employer failed to acknowledge receipt of the order, and in November the purchaser cancelled the order.

The seller filed suit to recover damages from the purchaser, on the grounds that his failure to notify the purchaser for three months

WITH NOTHING TO SELL, YOU'VE COST ME
THOUSANDS OF DOLLARS IN
LOST PROFITS



COURTS WILL ACCEPT A REASONABLE ESTIMATE OF LOST PROFITS IN FIXING DAMAGES FOR BREACH OF CONTRACT

is not his duty to disclose is not fraudulent, but where such silence is misleading to the purchaser the seller is duty bound to explain all facts to the buyer.

Usual Authority of Employee

Generally speaking, the higher courts hold that an employer is liable for a contract made by the employee, if the testimony shows that in the past the employer authorized the employee to make similar contracts.

For example, in *Goodwin & McDowell Motor Company*, it was shown that a finance company employed a collector who at various times in the past was authorized by the finance company to order service men and garage men to repair automobiles on which the finance company held mortgages.

The testimony showed that one Van bought a car from West End Auto Sales Company, which took a note and mortgage for part of the purchase price. A finance company purchased the note and mortgage from the mortgagee. Thereafter Van wrecked and damaged the car.

A garage man testified that the company's collector came to him and stated that an automobile, which the company had fi-

was charged for the work and paid by check.

In subsequent litigation the higher court held that the finance company must pay the repair bill which amounted to \$827. The court said:

"The habits and course of dealing of the principal (finance company) in repeatedly permitting the agent to incur liability for the repair of damaged automobiles, and in ratifying and adopting numerous contracts for repair made by the agent, were sufficient for the jury to draw the inference that the finance company intended that Dean (collector) had the authority to make this contract for repairs.

Contract Not Accepted

A few weeks ago a purchaser asked me to explain the circumstances under which an "offer" made by a purchaser to buy merchandise actually becomes a valid and enforceable contract.

All higher courts hold that an "offer" never is a valid contract until the offer is unconditionally accepted. Moreover, an "offer" cannot be lawfully accepted except by an employer or his authorized agent. And the higher courts hold that an ordinary salesman is not an authorized agent. In other words,

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that the merchandise would not be shipped plainly indicated that he intended to accept the order and prepare the merchandise for shipment.

It is interesting to observe that the court held the buyer fully within his legal rights in cancelling the order, under these circumstances, saying:

"There is no time, from the time such an order is received until it is accepted, that the person giving the order cannot countermand it. It is plain that mere silence on the part of the plaintiff (seller), after receiving the order, without any act tending to show an acceptance, would not cut off the right of defendant (purchaser) to cancel the order."

Written Contract Is Modified

A late higher court rendered an important decision to the effect that a valid written sale contract always can be modified, amended, or even cancelled, by an oral agreement. This is so although the written contract very specifically states that it cannot be modified, unless the modification is agreed to by both parties in a separate written contract.

For example, in *Heple v. Kluge*, 250 Pac. (2d) 694, it was shown that a written contract contained a clause that no verbal or oral agreements could be binding on the parties, who must rely exclusively on the written contract.

In later litigation, the higher court held that even though the written contract provided that there could be no modifications or changes in the terms thereof, except by an agreement in writing, yet the contract could be cancelled, altered or modified by an oral agreement between the parties.

No Consideration

According to a late higher court decision, a contract based on unlawful consideration is void. For instance, according to a late higher court decision, a purchaser who purchases a ticket on a "chance" to win something of value cannot compel the seller of the ticket to deliver the merchandise to the successful winner, because the "consideration" is unlawful.

In *Holmes v. Saunders*, 250 Pac. (2d) 269, it was shown that an organization sold tickets at \$1 each which entitled the purchasers to six months' subscription to a magazine, and a numbered ticket to be drawn at the Auditorium Arena on a certain date for a Buick sedan automom-

bile. The scheme was "for the disposal" of a Buick automobile, "by chance" drawing of a number.

A man proved that his ticket was drawn and he was declared to be winner of the Buick automobile. However, he was not permitted to take possession of the automobile. He filed suit asking the court to compel the seller of the tickets to give him possession of the automobile. The higher court refused to do so, saying:

"Since plaintiff's (purchaser's) cause of action depends on his success in a lottery, which is a criminal offense, the doors of the courts are closed to him. The consideration to make such a transaction a lottery need not be paid exclusively for the chance to win the prize. It is sufficient that the consideration, as here, be paid for something else and the chance to win the prize.

For other higher court decisions on this subject see *People v. Gonzales*, 144 P. (2d) 605; *People v. Miller*, 271 N.Y. 44, 2 N.E. (2d) 38; and see the many cases collected in the notes in 48 A.L.R. 1115; 57 A.L.R. 424; 103 A.L.R. 866; 109 A.L.R. 709; 113 A.L.R. 1121.

In another higher court case the testimony showed that a purchaser of merchandise was dissatisfied. The seller promised to send a salesman

"consideration" to make the seller's contract or promise valid.

Distributor Recovers Damages

Recently a dealer wrote as follows: "I signed a contract to act as distributor for a manufacturer for 2 years in this area for his line of merchandise. The manufacturer breached this contract by refusing to ship merchandise which I ordered. What are my chances of winning this suit and recovering damages? I cannot prove the amount of damages I sustained, but only estimate my damages."

Last month a higher court rendered a decision which clearly proves that this purchaser may win the suit. For example, in *Standard Company v. Duncan*, 208 Fed. (2d) 61, the testimony showed facts as follows: A manufacturer signed a valid written contract to manufacture certain merchandise and sell it exclusively to a wholesale and retail dealer. The manufacturer breached its contract after the dealer had expended considerable money, time and effort to start distributing and selling the merchandise.

In subsequent litigation the higher court held the manufacturer liable in damages to the dealer for \$37,855.84 and said:

"Certainly no authority need be

GET YOUR MAN OVER HERE TO FIX
THAT MACHINE LIKE YOU PROMISED



WARRANTIES MADE AFTER A CONTRACT IS SIGNED
ARE NOT BINDING ON THE SELLER

to assist the purchaser to dispose of the unsatisfactory merchandise.

In subsequent litigation, the higher court held that the seller could not be liable for his failure to send a salesman to assist the purchaser to dispose of the merchandise. This is so because the purchaser had promised nothing to the seller in return for the latter's promise to send a salesman to assist in disposing of the unsatisfactory merchandise. Hence there was no valid

cited for the broad proposition that prospective profits, if proved, are an element of a plaintiff's (dealer's) damages for breach of contract, or for the further proposition that evidence of past profits from an established business provides a reasonable basis for estimating future profits from the business. We think the evidence here is adequate to show a reasonable certainty of lost net profits from the venture undertaken by the corporations."

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For More Information Circle No. 162 on Inquiry Card—Page 17

Therefore, it is quite apparent that the courts award damages based on "estimated" profits a dealer or purchaser may have earned on a contract for distribution and sale of merchandise.

Oral Promise Not Valid

Last year a higher court very clearly held that neither a manufacturer nor seller is liable on an oral agreement made in violation to the written agency contract. Briefly, in this case the testimony showed that a purchaser and dealer in automobiles alleged that he relied on an oral promise by the manufacturer's direct dealer that his agency contract would not be cancelled if he proceeded to spend considerable money for improvements. Nevertheless, this written agency contract was cancelled. The court held the manufacturer's direct dealer not liable in damages to the automobile dealer.

In *Brown, Inc. v. Weber Implement & Automobile Company*, 260 S. W. (2d) 751, the detailed testimony proved these facts: One Brown owns 98% of the stock in a corporation engaged in the business

In 1947, representatives of the manufacturer and direct dealer of General Motors came to Mr. Brown's office and, according to Brown's later testimony, told him that the De Soto business had to be separated from the Cadillac business, and that he would have to improve the present building to the extent of 30,000 square feet; and that if this were done Brown's contract would not be cancelled. Also, Brown testified that at this same meeting these representatives orally said that the agency contract would not be cancelled if Brown made these improvements and changes, but that they were going to forward a termination or cancellation notice to the company and if Brown made the suggested improvements the notice would not be enforced.

The following day Brown received a registered letter from the manufacturer's direct dealer which contained the cancellation contract. However, relying on the verbal promise of the representatives to not cancel the contract, Brown testified that he made arrangements to house the Cadillac automobiles in another

"Plaintiff (Brown) may not defeat the termination notice given by the alleged parol agreement. . . . Such an alteration of the terms of the contract required a writing, and may not rest partly in the original written contract and partly in parol."

False Statements Made

On the other hand, if a seller of merchandise, real property, or other thing gives a "false" guarantee or otherwise makes a definitely false statement, the purchaser always can recover resultant damages.

For example, in *Marian v. Miller*, 55 N. W. (2d) 53, the testimony showed facts, as follows: One Miller owned and operated certain business property. Miller represented to one Marian that the gross income from the business property the preceding year was \$12,000. Marian purchased the property, paying Miller \$49,500.

Later Marian discovered that the gross income from the property was only \$7,000 per year, and he sued Miller for damages.

The higher court awarded Marian \$20,400.50 damages. This court explained that as Marian was induced to buy the property by a "false" statement of the seller, Marian was entitled to recover all damages and loss of expected profits he sustained. This court decided that a fair amount was \$20,500.50.

Other higher courts have held that if the testimony shows that the purchaser was induced by false and fraudulent representations to make a contract, he has either of three remedies: (1) He may rescind the contract and sue the seller for the money previously paid and return the merchandise; or (2) he may refuse to accept delivery of the merchandise; or (3) he may retain the merchandise and sue for the full damages he has sustained by reason of fraudulent representations made by the seller.

On the other hand, with respect to contracts of sale, a seller is not liable in damages for fraudulent statements, silence, or other promises made to a purchaser who did not rely upon such statements before the sale was made, or the contract was signed.

For instance, in a late case *Campbell v. C and C Company*, 21 N. W. (2nd) 427, a purchaser refused to make agreed payments for merchandise and the seller repossessed it. Later the purchaser sued the seller for heavy damages and alleged that the seller falsely



DESPITE CLAUSES OR CONSIDERATION, A CONTRACT CAN BE CANCELLED IF THERE IS NO DEFINITE ACCEPTANCE

of buying and selling motor vehicles. Brown and the manufacturer's "Direct Dealer" signed an agency contract in triplicate. The agency contract contained a clause that the agreement shall terminate immediately in the event Brown sells any other line of motor vehicles. Also, the contract contained a clause that the agreement may be terminated at any time upon not less than ninety (90) or more than ninety-five (95) days written notice by the Direct Dealer to Brown. This contract was signed in 1944, and at that time Brown sold Cadillac automobiles and De Soto automobiles in the same building.

building, purchasing the property for \$40,000. Brown's contract was nevertheless cancelled. Brown sued the direct dealer for \$200,000 damages for breach of contract, and \$200,000 actual and \$300,000 punitive damages for fraud and deceit.

The higher court held that Brown could not rely upon the alleged verbal or oral promise made by the representatives of the manufacturer's direct dealer to not cancel the agency contract although Brown proceeded to make the required improvements at great expense. In holding Brown not entitled to damages, the court said:

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says Boyertown Auto Body Works of Boyertown, Pennsylvania



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Low Alloy High Strength Steel

YOLOY E
(Nickel-Chrome-Copper)
Low Alloy High Strength Steel

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Corrosion Resistant Steel

Body Model S-7, with load capacity of 187 cu. ft. Boyertown Auto Body Works, Boyertown, Pa.

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and fraudulently misrepresented facts.

The higher court refused to hold the seller liable on a fraud charge because the purchaser failed to prove that he relied upon the alleged false statements or acts of the seller. Also, the purchaser did not prove that the alleged fraudulent statements were made before the contract of sale was signed.

Guarantee Is Void

Few sellers of merchandise realize that a guarantee given after the purchaser has accepted delivery of the merchandise, or signed the sale contract, ordinarily is void and has no legal effect.

For example, in *Budrow v. Wheatcraft*, 252 Pac. (2d) 637, the testimony showed that a seller sold merchandise to a purchaser named Budrow. At this time the seller gave no guarantee. Later Budrow complained about certain defects in the merchandise. At this time the seller guaranteed to Budrow that he, the seller, would "fix" the equipment. In holding the seller not liable on this guarantee the court said:

"It appears that appellant's (Budrow's) reliance is placed squarely on a warranty subsequent to the sale. If no representation of warranty was made at the time of the sale, a subsequent representation or agreement to warrant will be of no legal effect unless new consideration is given to it."

For comparison, see *William A. Davis Company v. Bertrand Company*, 94 Cal. App. 281. In this case after the merchandise was delivered to the purchaser, the seller made written statements in his correspondence with the purchaser, which constituted a warranty. In other words, the guarantee was made after the contract of sale was signed by the contracting parties. In holding the guarantee void, the court said:

"There was no consideration received or accepted which would sustain any new or additional warranty for goods already sold and delivered."

Therefore, the law is well settled that if the seller makes either an oral or written guarantee on merchandise after the original contract was signed, there is no liability unless some new "consideration" or payment was made by the purchaser of the merchandise at the time the seller gave the guarantee.

Manufacturers and other sellers often become involved in litigations

over "service". It is important to know that the higher courts consistently hold that where a manufacturer or seller fails to carry out an agreement to service or "keep in repair" certain merchandise or equipment, and he guaranteed that he "personally" will keep the apparatus in repair, the purchaser is entitled to rescind the contract and recover back the full purchase price.

For illustration, in *May*, 159 Md. 605, it was shown that a seller agreed to do necessary repair work on certain equipment for one year but he failed to do so. The higher court held that the buyer could either have the appliance repaired during the year at the seller's expense and deduct this expense from the contract price, or he could sue the seller and recover back the purchase money which had been paid.

The court explained that where a seller personally guarantees to perform necessary repairs on merchandise for a stated period, and fails to do so, the purchaser is entitled to rescind the contract and recover the full purchase price.

For comparison, see *Welkner v. Di Carlo*, 27 A. (2d) 351. In this case the sale contract provided that the seller "guaranteed service for one year free". There was no guarantee as to who would perform the

he incurred in making needed repairs. This court explained that where a seller does not guarantee that he "personally" will make needed repairs, the purchaser himself must make the necessary repairs and then he can sue the seller to recover the amount paid out for these repair bills.

Law Of Payments

Quite obviously, all purchasers are interested in new and unusual higher court decisions involving payment for purchased merchandise, particularly if the purchaser's unintentional acts resulted in his payments not being credited to his account.

For illustration, very often a purchaser pays for purchased merchandise on presentation of a bill of lading issued by a common carrier which indicates that the merchandise has been shipped. Generally speaking, this is done if the seller has borrowed money from a bank which holds the bill of lading as security. A later higher court held: If the seller fails to ship the goods or the bill of lading is forged, the purchaser is the loser.

For illustration, in *Firestone Tire & Rubber Company, v. Central National Bank of Cleveland*, 115 N. E. (2d) 477, the testimony showed a purchaser made a contract with a

BUT YOU TOLD ME
YOU WOULDN'T
CANCEL IF I PUT UP
A NEW BUILDING



I MAY HAVE SAID SO,
BUT IT DOESN'T SAY
SO IN THE CONTRACT

TERMINATION PROVISIONS OF A WRITTEN CONTRACT CANNOT BE ALTERED MERELY BY AN ORAL PROMISE

service except that the service was "guaranteed" for one year.

A purchaser discovered that certain equipment was defective and needed repairs and notified the seller who refused to repair it. The purchaser filed suit.

This higher court held that the purchaser was obligated to pay the agreed purchase price for the equipment, but that he could deduct from the contract price the total expenses

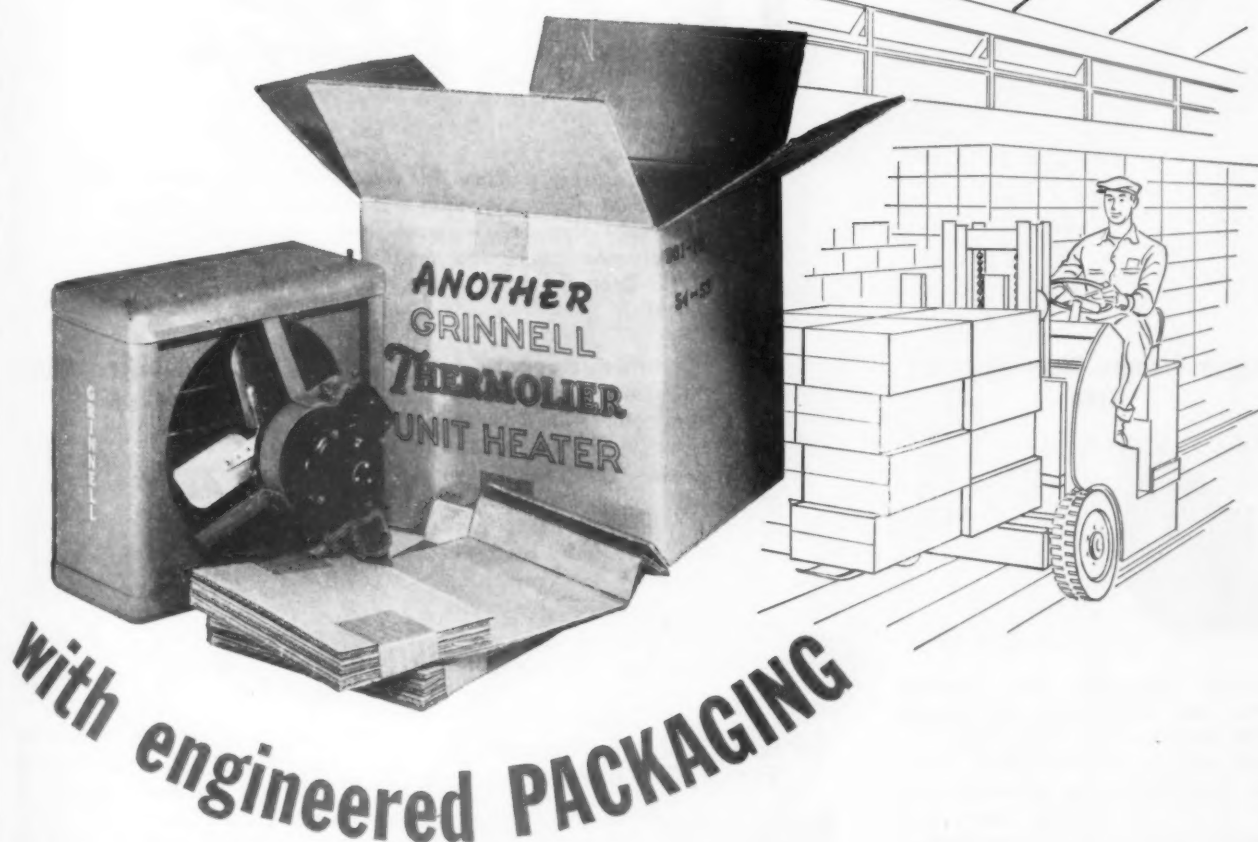
seller under which the latter agreed to sell sleds to the purchaser. The seller made a deal with a bank whereby he could assign his accounts to the bank as security, and borrow money from this bank.

On November 5, the seller borrowed money from the bank and assigned to the bank invoice No. 1868, billing the purchaser for 1250 sleds allegedly shipped to the pur-

(Please turn to page 320)

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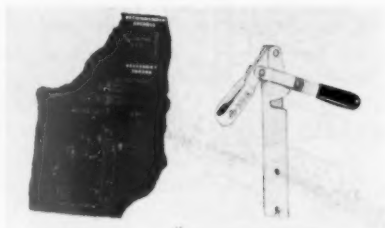
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New Products Ideas



You can get more information on any new product shown in this section. Just check the number that follows each item and circle the corresponding number on the Inquiry Card, page 17. Drop the card in the mail and we'll do the rest.

Toggle Clamps Clear Working Area



Detroit Stamping Co., Detroit, Mich., has introduced two toggle clamp models which have been designed with a low silhouette, complete clearance of the working area, and flop-over action. Both are equipped with a safety, vinyl plastic handle grip. They are termed "fixture framers" and "forty-fivers," because (1) angular flange base permits easy mounting to side of fixture; (2) when mounted vertically to side of fixture, the holding bars flop completely over side of fixture to produce a positive firm clamping action at a 45° angle directly against upright fixture base.

Circle No. 41 on Inquiry Card—Page 17

FHP Gearmotors Can Reverse Shaft Rotation Direction

A line of fractional-horsepower gearmotors has been put on the market by the General Purpose Component Motor Dept., General Electric Co., Schenectady 5, N.Y., that is smaller and lighter than previous designs. In these right angle and concentric-shaft gear motors, the driving motor is close coupled and positively geared to the output shaft. The units, there-

fore, offer maximum transmission of torque, uniform speed and no slippage. The motors are reconnectable externally to reverse the direction of shaft rotation. Large bearings, with extra high thrust capacity, are locked to carry motor shaft thrust in either direction. Applications are machine tools, pumps, conveyors, materials handling equipment, etc.

Circle No. 42 on Inquiry Card—Page 17

Modern Styled Extinguisher Expels Dry Chemical



A streamlined fire extinguisher, designed primarily for industrial use, is capable of expelling 10 lb of dry chemical, generally regarded as the most effective agent against factory fires. The customary ring pin has been eliminated, thereby speeding up the job of putting it into action. Instead of having to pull a ring pin, the user merely applies additional hand pressure to puncture the CO₂ pressure cartridge that activates the extinguisher. It is made by Ansul Chemical Co., Marinette, Wis.

Circle No. 43 on Inquiry Card—Page 17

Welder Regulates Arc, Wire Feed Automatically



Amsco Div., American Brake Shoe Co., 230 Park Ave., New York 17, N. Y. expects to have shortly on the market a semi-automatic welding machine that will combine for the first time the advantages of hand and automatic welding without many of the disadvantages of either method. It combines the speed and convenience of submerged melt technique with the visibility and flexibility of manual welding. It is adaptable to a variety of weld metals, including mild steel, manganese steel, and hardfacing alloys.

Circle No. 44 on Inquiry Card—Page 17

Primer Resists Corrosion

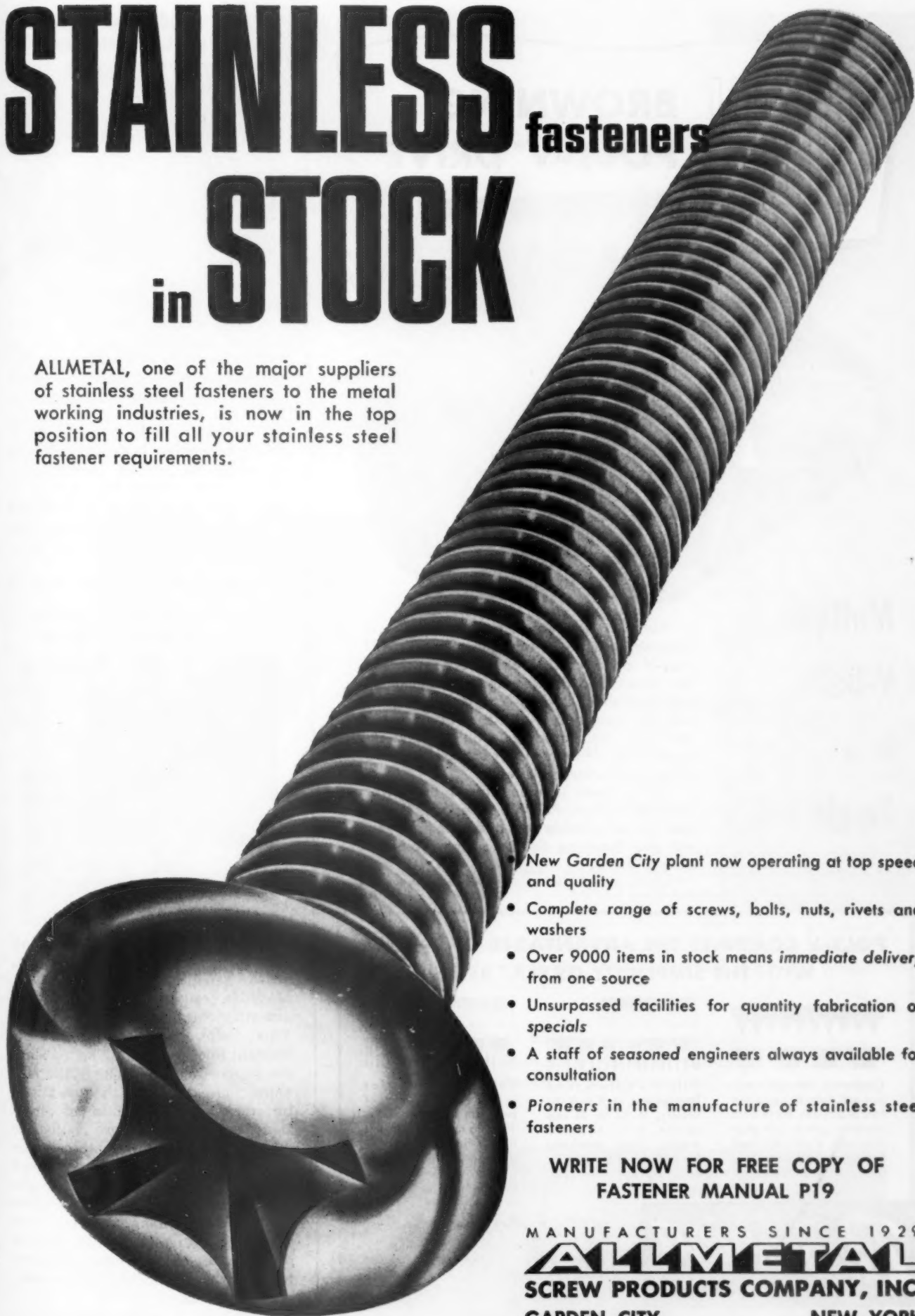
A corrosion resistant liquid primer for new or corroded steel surfaces has been developed by Pennsylvania Salt Mfg. Co., 1000 Widener Bldg., Philadelphia 7, Pa. On either sand-blasted new steel or wirebrushed rusted steel, it forms a tight adherent bond to the surface and gives excellent adhesion to various finish coating materials.

Circle No. 45 on Inquiry Card—Page 17

(Please turn to page 130)

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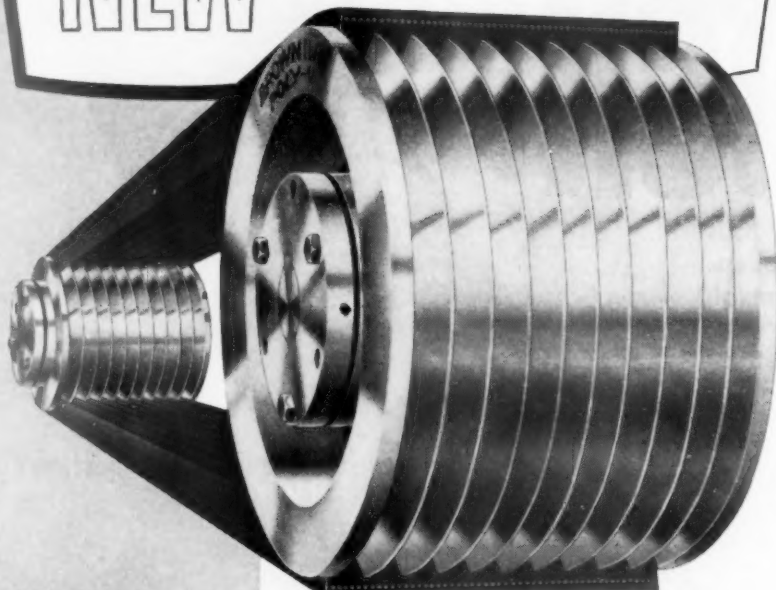
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GARDEN CITY NEW YORK

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Single Unit**

Here is the greatest advance in power transmission since introduction of the V-belt! Poly-V drive consists of rows of parallel V-belts molded as a single unit, running on matching sheaves. Poly-V saves space, increases capacity and efficiency of machines, eliminates belt matching problems and increases life of both sheaves and belts. Two cross sections serve all needs.

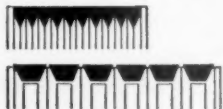
Actual tests in many types of power equipment prove Poly-V's superiority. Learn how this remarkable new drive can help you. Ask your Browning distributor or write us for Bulletin 2098.

*Raybestos - Manhattan, Inc. registered trade-mark for its patented Poly-V Drive.

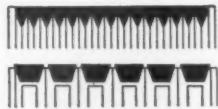
POLY-V COMBINES THE ADVANTAGES OF V-BELTS WITH THE SIMPLICITY OF FLAT BELTS



Continuous strength member of Poly-V equalizes load across belt and sheave, gives greater strength, flexibility and horsepower capacity. Ends all matching problems.



Poly-V delivers same horsepower as V-belt assembly, in $\frac{1}{4}$ to $\frac{1}{3}$ less space. Lessens drive weight, shaft overhang and bearing load, lengthens equipment life.



Poly-V provides for greater contact area of belt with sheave, delivers $\frac{1}{3}$ to $\frac{1}{2}$ more horsepower than V-belt assemblies in same space. Ideal for replacing overloaded drives, or delivering more power in limited space.

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Stair Hand Truck Handles Bigger Loads on Steps



A stair climbing hand truck has just been introduced which is said to safely double the load a man can roll up steps or treble what he can move down stairs or ramps. The truck is equipped with a special ratchet mechanism which enables it to roll upstairs step by step as the operator pulls a cable drive. Two-wheel safety brakes are claimed to safeguard against serious accidents when descending ramps or stairs with heavy loads. Valley Craft Products, Inc., 750 Jefferson Ave., Lake City, Minn., is the manufacturer.


Circle No. 46 on Inquiry Card—Page 17

Marking Machine Makes Lines at Walking Speed



A floor line-marking machine, developed by the H. C. Sweet Co., 12345 Telegraph Rd., Detroit 39, Mich., is designed with a two-wheel assembly attached to the barrel. This helps the operator make straight lines at walking speed since the supporting wheels keep the machine "on track" with practically no effort and a minimum of direction from the operator. Deliberate steering of the retractable guide wheel to right or left makes curved lines. A slight lift of the handle raises the marking brush to allow the machine to make skip lines or to be wheeled to other areas. In just one minute, the machine converts to a 2-wheel machine for narrow, crowded areas.

Circle No. 47 on Inquiry Card—Page 17



any size...



any shape...



any application...

Linear precision molded silicones

Whenever your design specifies a synthetic molded rubber product to precise dimensions, look to LINEAR. Must it be water repellent, resistant to oxidation, or impervious to oils, acids or synthetic fluids? Look to LINEAR. Want a range of thermal stability from -125° F. to 500° F.—or better? Look to LINEAR!

The combination of micrometer accuracy and superior physicals in LINEAR Precision Molded Silicones results from constant research and testing. It extends into virtually every field of industry. Where dimensional stability or long shelf life is a must, it pays to specify LINEAR.

Whether you need Molded Diaphragms, Roto-Molded "O" Rings, Boots, Impeller Seals or a variety of odd-shaped components, including bonded-to-metal parts, LINEAR engineers can save you time and money. Let us discuss your needs in the design stage.

"PERFECTLY ENGINEERED PACKINGS"

LINEAR

LINEAR, Inc., STATE ROAD & LEVICK ST., PHILA. 35, PA.



THIS CLEVELAND CONTAINER

made for

Heavy Duty

... with reinforced metal ends

The heavy wall is spirally wound, with multiple layers of high grade paperboard, closely butted and evenly bonded with adhesive to give extra strength and long use.

Moistureproof...

Immune to wear and tear....

Self-locking metal ends.

Excellent for shipping plated metal strips, shafts, rods, tubes and many other metal parts ... also used as cores for paper rolls and fabrics; bodies for reels; liners for metal drums.

Available in diameters and lengths as desired.

Usable for storage or reshipment.

Why Pay More? for Good Quality ... call CLEVELAND!

The CLEVELAND CONTAINER Co.

6201 BARBERTON AVE. CLEVELAND 2, OHIO

• All-Fibre Cans • Combination Metal and Paper Cans
• Spirally Wound Tubes and Cores for all Purposes

PLANTS AND SALES OFFICES: Cleveland, Chicago, Detroit, Memphis, Plymouth, Wisc.,
Ogdensburg, N. Y., Jamesburg, N. J., Los Angeles • ABRASIVE DIVISION at Cleveland.
SALES OFFICES: Grand Central Terminal Bldg., New York City; Washington
Gas Light Bldg., Washington, D. C.; West Hartford, Conn.; Rochester, N. Y.
Cleveland Container Canada, Ltd.: PLANTS AND SALES OFFICES: Toronto and
Prescott, Ont. • SALES OFFICE: Montreal.



Drop Cloths to Protect Equipment



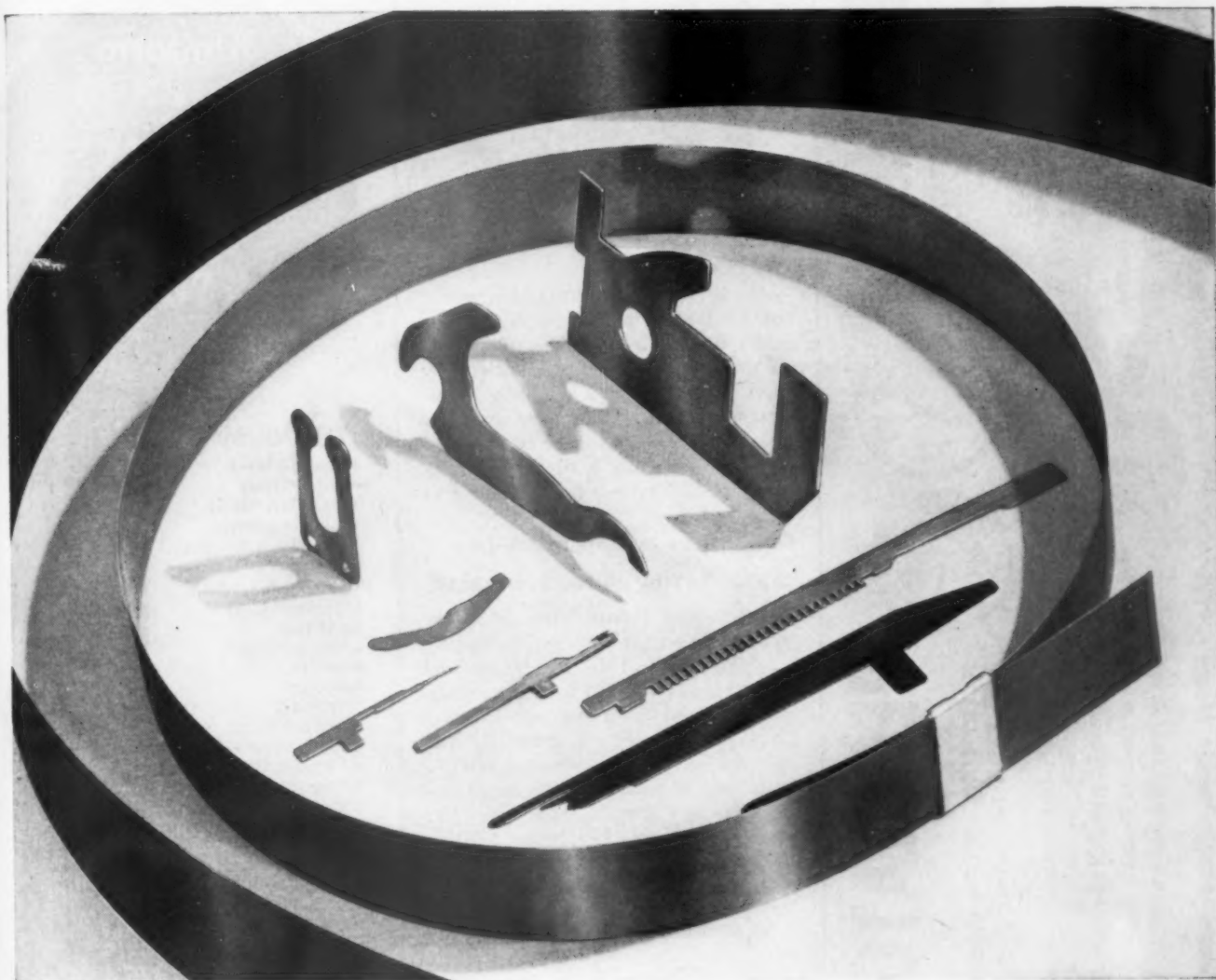
Fibleco Illinois Corp., 4646 N. Clifton, Chicago 40, Ill., is manufacturing flameproofed industrial paper drops that are not only heavier in weight but also provide unusually high scuff resistance. This is because the paper drop cloths are manufactured by a resin process which greatly increases paper strength, wet or dry. The result is an easy-to-handle drop cloth for protecting lines of machinery, storage items and large areas from paint, sprays, grime, dust, moisture, frost, fire or automatic sprinkler hazards. Circle No. 48 on Inquiry Card—Page 17

Speed-Reduction Drives for Vertical Mounting



The American Pulley Co., 4200 Wissahickon Ave., Philadelphia 29, Pa., says that a line of vertical shaft-mounted units has been designed for applications where the driven machine shaft is in a vertical position, or nearly so, such as on mixers, agitators and liquid processing machines. The units are available from stock in both 13:1 and 20:1 ratios for requirements through 42 hp. The reducers feature helical gears cut from alloy steel forgings. Both ball and tapered-roller bearings are used where they best serve the purpose. The units can be supplied with a torque-arm overload release to give complete protection to the machine, motor and drive, in the case of jam, choke or shock loads.

Circle No. 49 on Inquiry Card—Page 17



TOUGH JOBS NEED TOUGH STEELS

These precision parts, made for textile knitting machines and refrigerator valves, take a terrific beating. That's why the manufacturers' requirements are so high. Strength, precision, and flatness are musts. And that's why Uddeholm Swedish cold-rolled strip was used to make them.

Furthermore, on large scale stamping runs, like those for making the parts above, it is very important that the strip be uniform in chemical composition, physical properties, flatness, thickness, and finish. And that's another reason Uddeholm filled the bill.

If you want uniformly high grade, cold-rolled strip—wide or narrow, thick or thin, hardened or annealed, finished blue or straw or bright—just let us know.

Stocks of clock spring steel, bandsaw, flapper valve, thickness gauge, razor, and many other types, are carried in New York, Cleveland, and Los Angeles.

WRITE FOR SUBSCRIPTION TO UDDEHOLM'S MONTHLY STOCK LIST OF STRIP STEELS.

UDDEHOLM, 155 East 44th St., New York 17, N. Y.

Please send me monthly strip steels stock list.

NAME

TITLE

COMPANY

ADDRESS

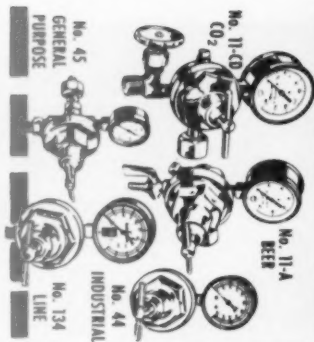
CITY ZONE STATE



UDDEHOLM COMPANY OF AMERICA, INC.

Tool and Die Steels
Specialty Strip Steels

New York: 155 East 44th Street, MUrray Hill 7-4575
Cleveland: 3756 Carnegie Avenue, HEnderson 1-7440
Los Angeles: 5037 Telegraph Road, ANgelus 2-5121



DOCKSON



REGULATORS

... Built for Better Service!

STURDY CONSTRUCTION—Forged brass bodies, shatterproof gauges, dependable safety valves.

LOW COST—Replaceable, self-aligning seats; minimum of moving parts.

YOUR DOCKSON DISTRIBUTOR—a selected specialist stocks a complete line of Dockson Products to give you fast service and personal attention. We back our distributors 100%.



WRITE FOR YOUR DISTRIBUTOR'S NAME
AND OUR COMPLETE CATALOG OF WELDING
AND CUTTING EQUIPMENT

For More Information Circle No. 171
on Inquiry Card—Page 17

Air Horn Audible Above Operational Noises



Air horns, whose musical warning covers long distances and can be easily heard above noises of factory machinery, are in production by Buell Mfg. Co., 919 W. 49th Place, Chicago 9, Ill. They are easy to operate as no air tank or compressor is necessary. Made of spun brass, they are 15" over-all, with bell diameter 5½".

Circle No. 50 on Inquiry Card—Page 17

Space-Saving Circuit Breaker

A 100-amp circuit breaker safety switch, in a space-saving enclosure, occupying half of the space required by comparably rated fused switches, is announced by Heinemann Electric Co., 744 Plum St., Trenton 2, N.J. It is designed for service on 120/240 volts a-c in two or three wire installations. It employs general purpose type circuit breakers in 70 or 100 amp ratings.

Circle No. 51 on Inquiry Card—Page 17

Janitor's Utility Cabinet

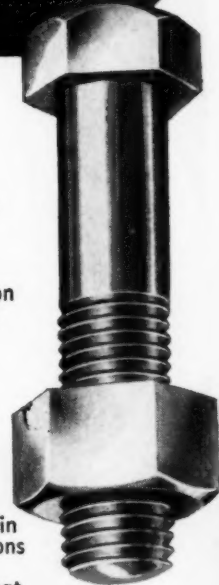


A heavy duty all-steel "custodian closet" is claimed by the manufacturer, Marvel Metal Products Co., 3843 W. 43rd St., Chicago, Ill., to be the lowest priced of any steel utility cabinet. The cabinet measures 66" high by 28" wide and 14" deep. It has large shelf storage area and hooks in the doors. There is ample space for storage of push brooms, pails, soaps, brushes and bottles of all sizes. A lock and two keys safeguard contents against pilferage and unauthorized use.

Circle No. 52 on Inquiry Card—Page 17

Uniform
Class 3 Fit

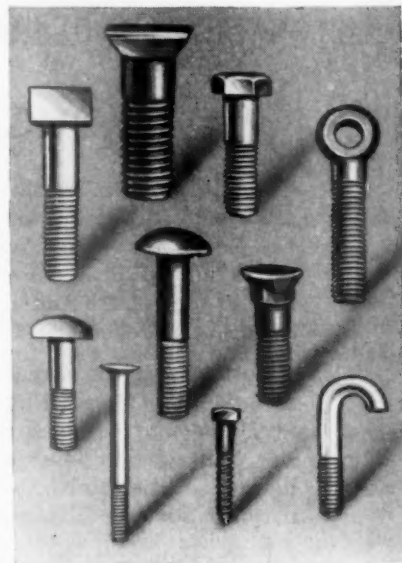
BOLTS NUTS STUDS



TITANIUM

- Carbon Steel
- Alloy Steels
- Stainless Steels
- Silicon Bronze
- Naval Brass
- Monel Metal

You can depend on a uniform Class 3 fit if required when you buy Pawtucket threaded fasteners. Standard items or specialties — all Pawtucket products are accurately made in standard dimensions or to your specifications. Heat treating with precision-controlled modern equipment.



BETTER BOLTS SINCE 1882

PAWTUCKET

MANUFACTURING COMPANY



327 Pine St. • Pawtucket, R. I.
THE PLACE TO SOLVE YOUR BOLT PROBLEMS
T.M. REG.

"The Bolt Man"

For More Information Circle No. 170
on Inquiry Card—Page 17

PURCHASING

Here's why BOWER straight roller bearings can carry maximum loads—with less maintenance!

The important design features of Bower straight roller bearings shown on this page are just a few of the reasons why these bearings will operate efficiently and economically in your product. Consider these facts, too. Bower straight roller bearings incorporate highest quality materials and workmanship. They have proved themselves capable of standing up day in and day out under maximum loads—with little or no maintenance.

In fact, this is the reason why Bower straight roller bearings are used extensively by leading manufacturers in such fields as automotive, earthmoving, farm equipment and machine tool.

Let a Bower engineer give you full details of the complete Bower line. Call him in while your product is still in the blueprint stage.

BOWER ROLLER BEARING COMPANY • DETROIT 14, MICHIGAN



● **TWO-LIP RACE INCREASES RIGIDITY.** These two shoulders, made parallel, are integral with the outer race. This provides a more rigid, durable construction. Rollers are kept in proper alignment at all times.

● **COMPOSITE STEEL CAGE DOES NOT CONTACT ROLLERS DURING NORMAL OPERATION,** thereby allowing free movement of the rollers between the races. Projections on the inner faces of the rings engage indentations on the roller ends preventing the rollers from dropping out of position when the separable race is removed.

● **PRECISION-BUILT ROLLERS AND RACES ARE MADE TO SUPPORT MAXIMUM RADIAL LOADS.** Only the highest grade steel-alloy is used, and rollers and races are precision ground to give quieter, smoother operation. Running clearance is built in at the time of manufacture.

A COMPLETE LINE OF
TAPERED, STRAIGHT AND
JOURNAL ROLLER
BEARINGS FOR EVERY
FIELD OF TRANSPORTATION
AND INDUSTRY

BOWER

ROLLER BEARINGS



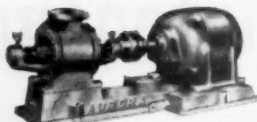
FEBRUARY, 1955

For More Information Circle No. 172 on Inquiry Card—Page 17



Better on "1001" Pumping Duties

Capacities
to 150 G.P.M.



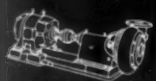
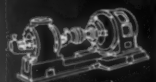
Heads
to 500 Ft.



**APCO Two-Stage Turbine
Type Pump for High
Pressure Service**

Apco—the pump with but one moving part, the impeller — is famous for long-lived, efficient performance on small capacity, high head duties. Available in Single Stage, Two Stage and 4-Stage Tandem for high pressures — and Water Jacketed for high temperature and highly volatile liquids.

Write for Bulletins
111, 111-A, 111-WJ



DISTRIBUTORS IN PRINCIPAL CITIES

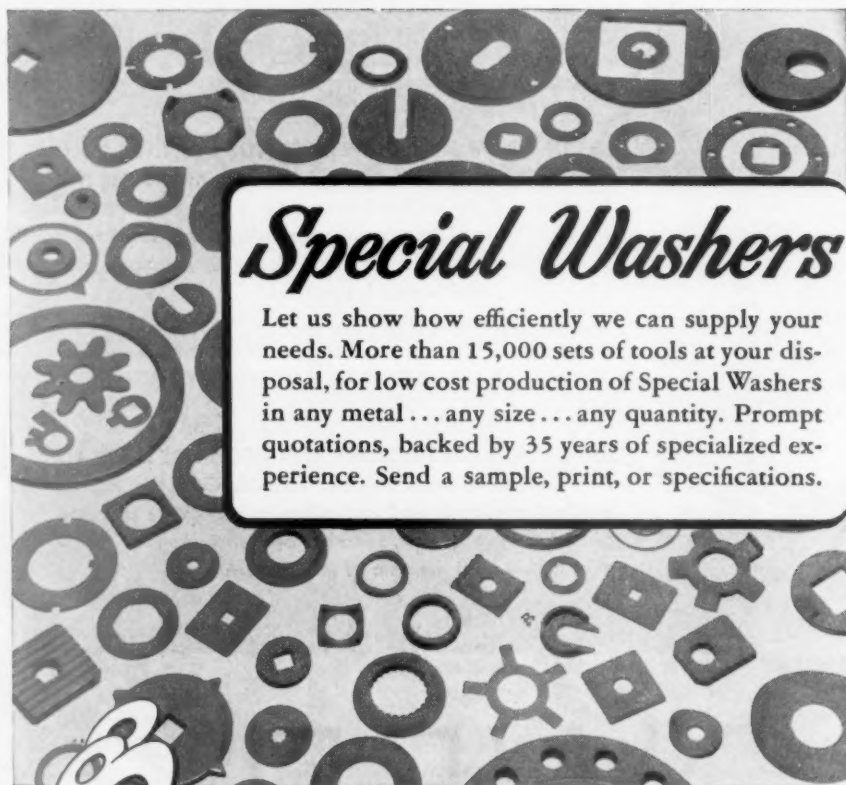
AURORA PUMP DIVISION
THE NEW YORK AIR BRAKE COMPANY

12 LOUCKS STREET

AURORA • ILLINOIS



For More Information Circle No. 173 on Inquiry Card—Page 17



Special Washers

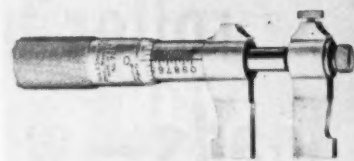
Let us show how efficiently we can supply your needs. More than 15,000 sets of tools at your disposal, for low cost production of Special Washers in any metal... any size... any quantity. Prompt quotations, backed by 35 years of specialized experience. Send a sample, print, or specifications.

THE Master Products co.

6400 PARK AVENUE • Diamond 1-1740 • CLEVELAND 5, OHIO

For More Information Circle No. 174 on Inquiry Card—Page 17

Caliper Quickly Precision Measures



It is claimed by The L. S. Starrett Co., Athol, Mass., that precision measuring of hole diameters and linear dimensions between inside surfaces can be accomplished quicker with an inside micrometer caliper that it has developed. The device combines the convenience and quick-reading features of a micrometer with Vernier caliper-style jaws. The instrument has a range of 1.000" to 2.000" by thousandths of an inch. No-glare, satin chrome finish eliminates glare and eye strain, making the tool easy to read in any light.

Circle No. 53 on Inquiry Card—Page 17

Aluminum Bus Conductor

Reynolds Metals Co., 2500 S. Third St., Louisville, Ky., has developed a new electric bus conductor material. It is designed to answer the need for an aluminum conductor that would best replace copper. The material has improved mechanical properties, combined with high electrical conductivity, excellent workability and versatility as to size and shape.

Circle No. 54 on Inquiry Card—Page 17

Plastic Headshields Protect Welding Operators



Made of fiber glass reinforced plastic, reported to be the strongest protective material per ounce of weight, molded headshields are available for the head protection of welding operators. They offer the user lighter weight comfort with

(Please turn to page 142)

Whatever the job...

PERMACEL 97
ACETATE FIBRE TAPE



sealing or stenciling

PERMACEL 77
MASKING TAPE



SELF-STICKING PERMACEL[®] TAPES

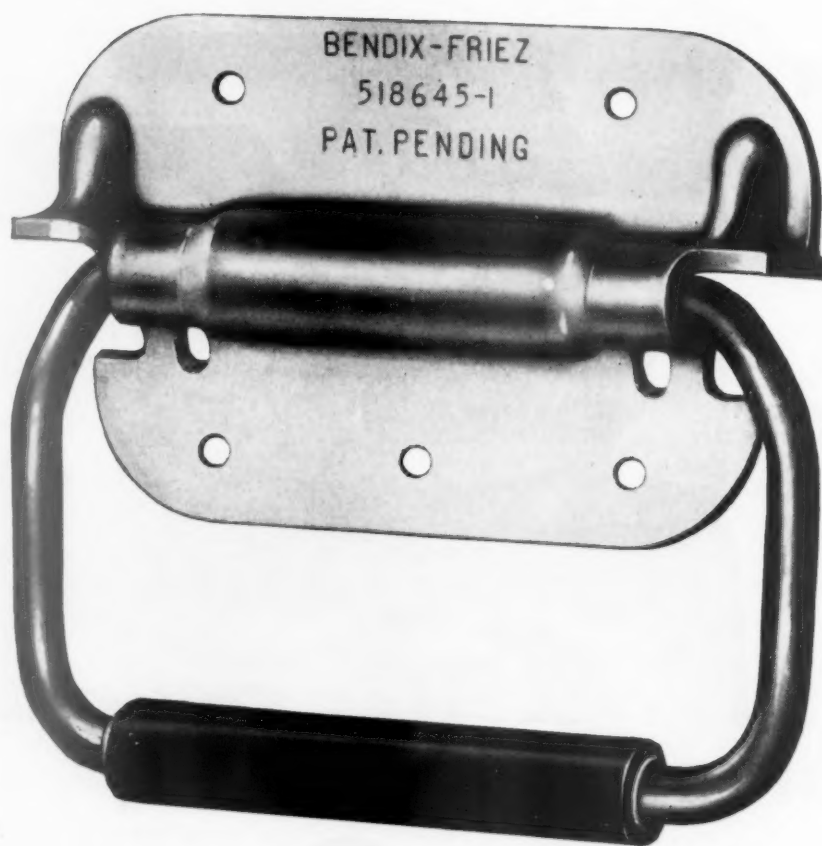
In our complete line, there's a self-sticking tape for every job . . . write Permacel Tape Corporation, New Brunswick, N. J.

a *Johnson & Johnson* company

For More Information Circle No. 177 on Inquiry Card—Page 17

FEBRUARY, 1955

141



BIG NEW HANDLE

Meets specifications of MIL-C-4150-A and MIL-T-945-A.
Grasping handle has insulating sleeve that will not crack or chip at -65°F . or become sticky or tacky at $+160^{\circ}\text{F}$.

If you have a carrying case problem, please read this.
 It's all about a new kind of handle.

It's a rattle proof handle

A reclaiming spring forces the grip down against the surface and holds it firmly in place.

It's sturdy and safe

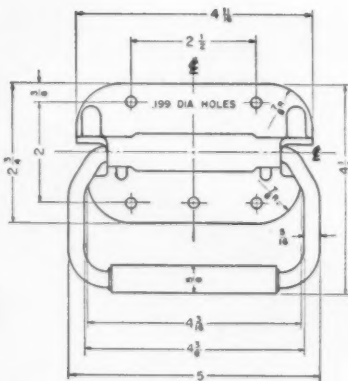
It has a "snap-back" feature ideally suited for many uses in industry where conventional type handles are not satisfactory. It is strong enough to lift 200 pounds with an adequate safety factor. Fingers are free from pinching.

Corrosion proof

Made of carefully selected materials which are treated to provide maximum resistance to rust and corrosion.

Easily applied

Nuts and bolts, welding or other suitable fastening may be used as long as the surface to which it is attached is as strong as the back of the plate handle.



Bendix-Friez

FRIEZ INSTRUMENT DIVISION OF BENDIX AVIATION CORPORATION

1456 TAYLOR AVENUE, BALTIMORE 4, MARYLAND

Export Sales:

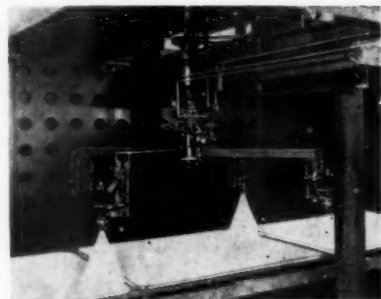
Bendix International Division, 205 E. 42nd St., New York 17, N. Y., U. S. A.

(Continued from page 138)

complete head protection from the welding arc and spatter. There are two types: one has the lens holder molded right into the shield to eliminate light leaks and to further reduce the weight; the other is of the same general design but has a lift front lens holder to permit the operator to view, chip and clean the weld without raising the hood. Hobart Bros. Co., Troy, Ohio, is the manufacturer.

Circle No. 55 on Inquiry Card—Page 17

Spray Painting Machines for Use on Flatware



A rotary spray painting unit can be used on flatware to do the work previously reserved for automatic reciprocating paint machines. Rotary guns operate only when they are directly over the ware. Each gun turns on automatically when it approaches the edge of the product and shuts off as it leaves. Three major advantages are claimed for the machine by the makers, Binks Mfg. Co., 3122 Carroll Ave., Chicago 12, Ill. (1) It can apply coatings at speeds up to 100 fpm. (2) The amount of finish applied to the surface can be controlled by varying speed of the rotary head. (3) Fewer moving parts in the unit reduce maintenance problems.

Circle No. 56 on Inquiry Card—Page 17

Non-Slip Floor Wax

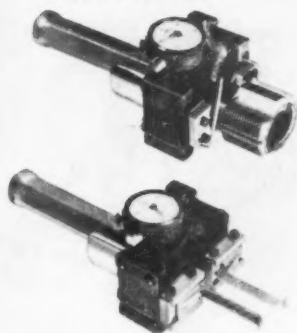
West Disinfecting Co., Long Island City, N.Y., is marketing a high gloss, non-slip, water-based floor wax. It provides a tough protective film that will not yellow or discolor light colored (even white) floors. It resists scuffing, water spotting, peeling and whitening. Occasional damp mopping with plain water restores the finish.

Circle No. 57 on Inquiry Card—Page 17

Want more Facts on any of the products shown in this issue?
Get them quickly and easily by using the INQUIRY CARD PAGE 17

For More Information Circle No. 179 on Inquiry Card—Page 17

Single Gage Checks Internal Threads, Grooves



Interchangeable segments are said by Bryant Chucking Grinder Co., Springfield, Vt., to allow both internal threads and internal grooves to be checked with the one and same gage. The company explains that the gage is built on the principle of an "expanding" plug which actuates a precision dial indicator showing the size comparison of the part to a master setting ring. The gage is claimed to check threads of 5/16" to 5" diam eight to ten times faster than conventional gaging methods. It also quickly checks diameters and roundness of internal grooves or recesses up to 5" diam and grooves located at depths up to 2".

Circle No. 60 on Inquiry Card—Page 17

Scales Print Both Weight and Count



Toledo Scales Co., Toledo 1, Ohio has in production a weight-count system that counts hundreds of parts accurately in a few seconds and can print both the weight and the count. The counting scales, equipped with selective numbering equipment, permit the printing of any count up to 9,999 simultaneously with the weight figure. This system saves time by counting hundreds of parts quickly and eliminates chances for human error in reading, remembering and recording.

Circle No. 61 on Inquiry Card—Page 17

For More Information Circle No. 183
on Inquiry Page—No. 17
FEBRUARY, 1955

CASTINGS on the lighter side by WELLMAN

Chances are no matter what business you're in...
manufacturing household appliances...
providing transportation for people
or products...
producing farm equipment, or textile equip-
ment, or portable tools...

there's a WELLMAN aluminum or magnesium
casting somewhere in the picture.

For almost half a century we've been producing
castings on the lighter side to fill a wide range
of specifications — and we know what it takes
to do it. We know the importance of constant
research and laboratory control, of the finest
production methods and equipment, and of ex-
perienced people in all departments.

Our four complete plants and staff of compe-
tent personnel are geared to meet any castings
requirement. Let us hear about yours.

New catalog No. 53 on request.

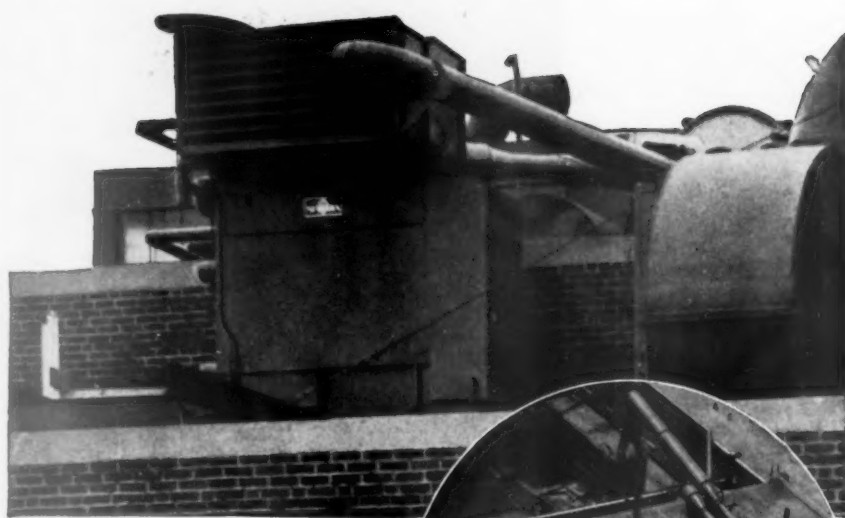
Well-Cast MAGNESIUM AND ALUMINUM CASTINGS
Well-Made WOOD AND METAL PATTERNS



THE WELLMAN BRONZE & ALUMINUM CO.

Dept. 17 12800 Shaker Boulevard Cleveland 20, Ohio

For More Information Circle No. 184 on Inquiry Card—Page 17



DRY, FRESH AIR

For a Supersonic WIND TUNNEL

● New and improved, this NIAGARA METHOD that effectively dries outdoor air for a wind tunnel used for testing at supersonic speed, can be trusted to give you the best air conditions for your purpose:

- to dry your materials or products
- to prevent condensation or moisture damage
- to protect your moisture-sensitive processes
- to give you an atmosphere in which your product can be packaged or stored safely.
- to give you exactly the right atmospheric conditions for testing materials
- to put "fresh air" back into your air conditioning, increasing its capacity and effectiveness

The Niagara "fresh air" Method removes the excess moisture from outdoor air by contact with an absorbent liquid in a spray chamber. The liquid contact temperature and the absorbent concentration, both controlled thermostatically, determine the amount of moisture in the conditioned air. Heating or cooling the air is a separate function. Therefore, you can easily and inexpensively have a precisely controlled condition without the use of moisture sensitive instruments.

The Niagara Absorbent Spray Method is noted for solving the really difficult problems of air conditioning. Write for complete information.

NIAGARA BLOWER COMPANY

Over 35 Years' Service in Industrial Air Engineering

Dept. PU, 405 Lexington Ave.

New York 17, N.Y.

Field Engineers in Principal Cities of U. S. and Canada

For More Information Circle No. 185 on Inquiry Card—Page 17

Side Loading Attachment Saves Time



A fork truck has been developed with a side loading and unloading attachment. With its use, it is possible to place material in racks and remove it without turning the truck in the aisle, thereby effecting great savings in aisle width and time. The combination of a power-driven conveyor and a side-shifter make it possible to transfer long loads such as cartons and lumber directly into storage racks, equipped with rollers, with a minimum of truck maneuvering. Unit loads up to 70" long x 24" wide and weighing 500 lb can be handled. The units are a development of Lewis-Shepard Products, Inc., Watertown, Mass.

Circle No. 62 on Inquiry Card—Page 17

Safely Burns 450 lb. of Waste per Hour



The problem of industrial waste disposal is made easier by an incinerator of a new design. The basic design is suited to the incineration of all average dry waste. Modifications of the basic design are easily made for disposal of wet refuse. An extra large door simplifies charging bulky objects such as large boxes. The door is of the split-gullotine type, counterbalanced for effortless operation. The models are portable and come in three standard sizes with capacities from 200 to 450 lb/hr. The maker is Plibrico Co., 1800 N. Kingsbury St., Chicago 14, Ill.

Circle No. 63 on Inquiry Card—Page 17



Long Distance doesn't cost



it pays

In this era of high overhead and increasing competition, wise purchasing means profit. Missed delivery dates — wrong quantities — short supply — large inventories all cut deeply into profits.

By using Long Distance systematically, you can order materials as they're needed—at the right price—in the right quantity—at the right time.

With Long Distance you can control shipments under way by verbal orders and you can "shop the market" without leaving your desk.

We have a number of specific plans for the profitable use of Long Distance in purchasing. A call to your Bell Telephone Business Office will bring a representative to discuss them with you.

BELL TELEPHONE SYSTEM



LONG DISTANCE RATES ARE LOW

Here are some examples:

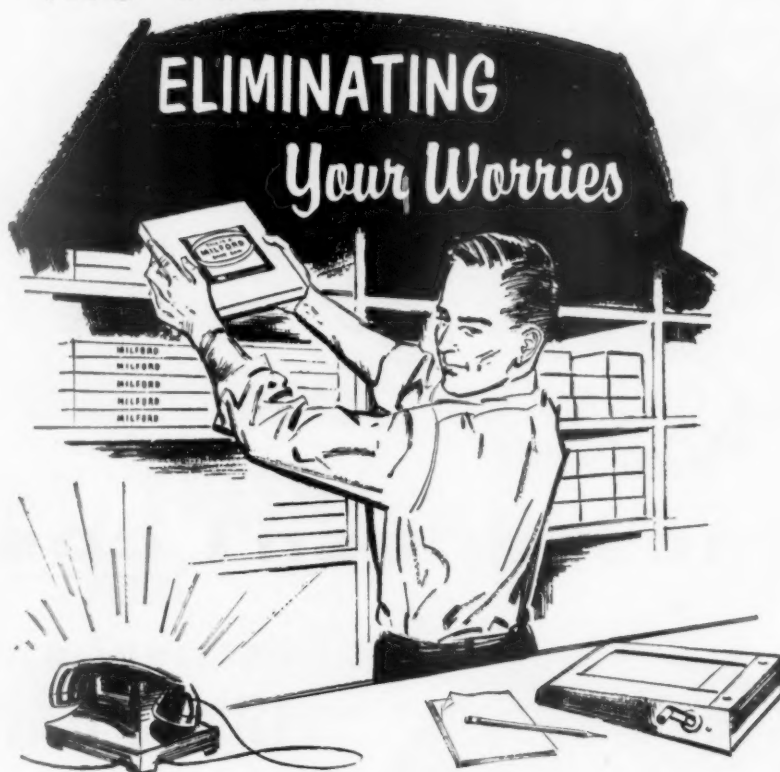
Baltimore to Philadelphia	55¢
Cleveland to Pittsburgh	60¢
Atlanta to Indianapolis	\$1.15
Chicago to New York	\$1.50
Los Angeles to Washington	\$2.50

These are the daytime Station-to-Station rates for the first three minutes. They do not include the federal excise tax. Rates are even lower after 6 o'clock every night and all day Sunday.

Call by Number—it's twice as fast

For More Information Circle No. 188 on Inquiry Card—Page 17

HIS JOB...



ELIMINATING Your Worries

You can Count on

- ADEQUATE STOCKS ALWAYS
- BETTER SERVICE
- SIMPLIFIED INVENTORIES

when you order from your

MILFORD Distributor

Product superiority is important . . . and we spare no detail in design, development or manufacture that will make MILFORD Blades cut metal faster and more accurately at lower cost. We must also make sure the right MILFORD Blades for *your* metal cutting jobs are quickly and conveniently available when you need them. That's why MILFORD Blades are offered exclusively through selected Industrial Distributors.

Familiar with your needs, your local Distributor always maintains adequate stocks of the blades (and other tools) you call for. There's no need to maintain large, complicated inventories . . . simply order for your present needs and re-order when necessary. For prompt, courteous, personalized service . . . just reach for your telephone.

STANDARD OF QUALITY THE WORLD OVER



THE HENRY G. THOMPSON & SON CO.

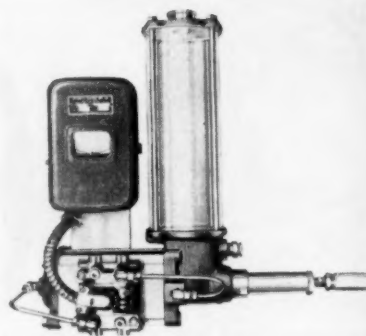
Saw Blade Specialists for Over **75** Years

NEW HAVEN 5, CONNECTICUT

Profile Blades and Band Saw Blades, Hand and Power Hack Saw Blades

For More Information Circle No. 189 on Inquiry Card—Page 17

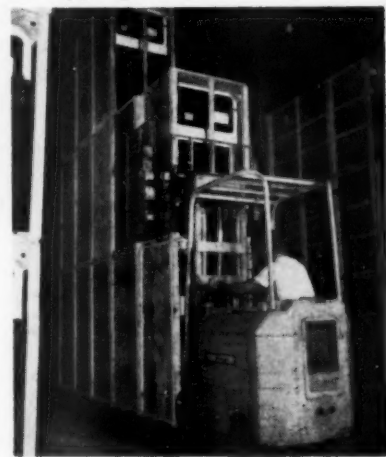
Centralized Lubrication Cuts Down Time



Automatic application of fluid lubricants to bearings on individual industrial machines at predetermined intervals is provided by a newly announced air-operated centralized lubrication system. The system was developed, according to the manufacturer, Lincoln Engineering Co., Industrial Div., 5783 Natural Bridge Ave., St. Louis 20, Mo., to fill the need for servicing machines operating at varying rates of speed, where applications at varying intervals may be required.

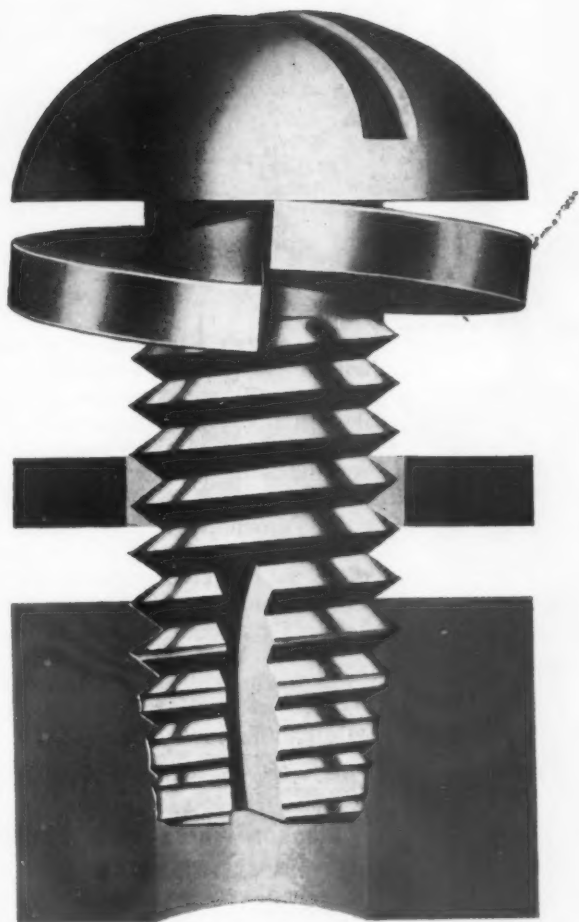
Circle No. 64 on Inquiry Card—Page 17

Carton Clamp Prevents Tipping Stacked Material



Fork lift truck high-stacking of heavy loads with a carton clamp is said to have been made completely safe with a double-action hydraulic carton clamp, developed by Towmotor Corp., 1226 E. 152nd St., Cleveland 10, Ohio. This unique clamp permits faster approaches when removing heavy loads from a stack with a fork truck, because each arm is controlled by a separate control lever. Clamp arm pressure applied to both sides of the carton can be equalized by the fork lift truck driver to prevent tipping over high stacks of cartons. With the clamp, reduction of handling time and costs of 50% is not unusual.

Circle No. 65 on Inquiry Card—Page 17

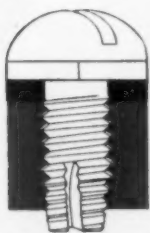


Eaton

Thread-Cutting

SPRINGTITES® & SEMS

Fasten Securely



**WITHOUT
TAPPING**

**Controlled
quality**



**from our own
Steel Mill**



**through
our finished
product**



"SPRINGTITE" AND "HOZ-FAS-NER" ARE REGISTERED
TRADEMARKS OF THE EATON MANUFACTURING COMPANY

RELIANCE DIVISION

OFFICE and PLANTS: 513 CHARLES AVE., MASSILLON, OHIO

SALES OFFICES: New York • Cleveland • Detroit • Chicago • St. Louis • San Francisco • Montreal

For More Information Circle No. 192 on Inquiry Card—Page 17

Whether it's a washing machine, turret lathe or locomotive, industrial production men and designers can save time and money by eliminating the need to tap parts before fastening. Design and production engineers in every field of industry can attest to the saving features of Eaton Thread-Cutting Springtites and Sems. They cut their own threads as they're applied thus cutting the cost of a production operation. In addition they seat tightly, thread against thread, eliminating the possibility of stripped or mismatched threads.

Made from the finest quality cold drawn steel, Eaton Thread-Cutting Springtites and Sems come in types 1, 23 and 25 making them ideal for use with sheet and stainless steel, die castings and plastics. They are available with or without preassembled spring lock washer. You can test these Eaton cost cutting fasteners by writing for samples and a copy of Engineering Bulletin S-49A.



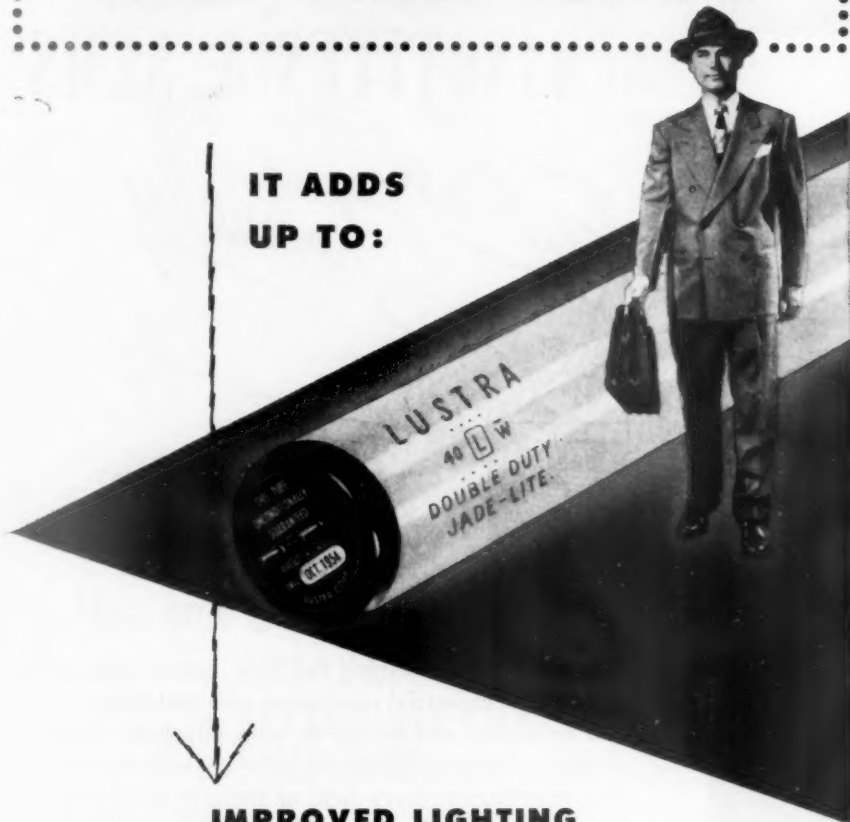
MANUFACTURING COMPANY



Springtites & Sems Snap & Retaining Rings Special Stools Spring Lock Washers Hoz-Fas-Ner

MORE SEE-ABILITY with Jade-Lites

IT ADDS
UP TO:



**IMPROVED LIGHTING
EFFICIENCY** with Lustra Jade-Lite Fluorescent Tubes
because of —

LESS GLARE, which in turn —

ELIMINATES EYESTRAIN
in close, critical work areas, with the result that —

**PRODUCTION IS STEPPED UP
SUBSTANTIALLY!**

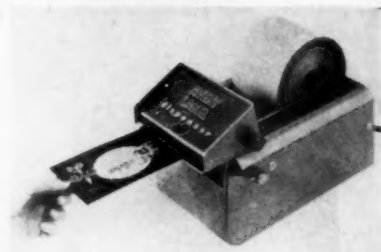
Your local Lustra Man, a Lighting Specialist, is equipped to prove these statements — to help your organization up production and increase profits. For information, write **Lustra Corp., Dept. P-2, 36 Washington St., Brooklyn 1, N. Y.**

Lustra

AMERICA'S DATED LAMPS

For More Information Circle No. 193 on Inquiry Card—Page 17

Dispenser Feeds Pressure-Sensitive Labels



A completely automatic electric label dispenser is expected to trim labor costs and increase production in hundreds of varied labeling operations. It eliminates need for foot switches or rheostat controls. As a label is taken from the mouth of the dispenser, another label rolls out automatically—ready for instant application. It will dispense one label at a time, or several, depending on the user's requirements. It handles pressure sensitive labels which are sold in convenient rolls. Dispenser is made by Avery Adhesive Label Corp., Monrovia, Calif.

Circle No. 66 on Inquiry Card—Page 17

Stacker Works With Platform or Forks



Lewis-Shepard Products, Inc., Watertown, Mass., has available an electro-hydraulic stacker. The unit is equipped with 30" long forks which handle 30" x 30" pallets. When crated appliances, drums, dies or personnel have to be raised to desired height, a platform 30" x 40" wide can be easily slipped over the forks. The lifting height is 58" and the weight approximately 700 lb. With a 1000 lb load, a lifting speed of 25 fpm is possible. The dual-purpose stacker is ideal for applications where both forks and platform are necessary, usage is frequent and a fast lifting speed is required.

Circle No. 67 on Inquiry Card—Page 17

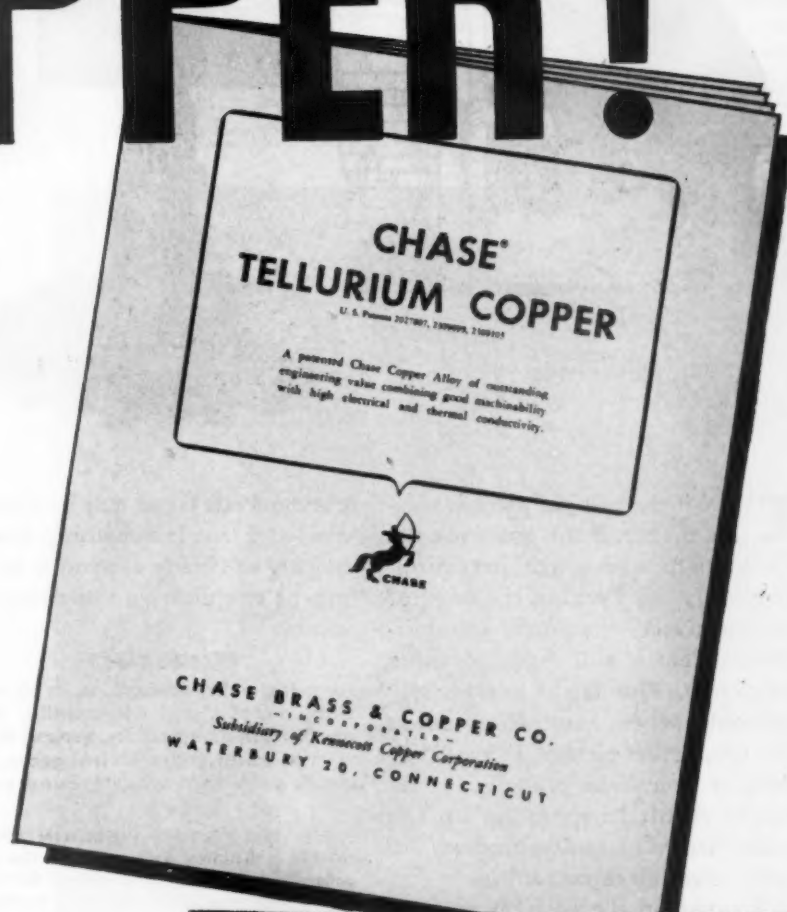
TELLURIUM COPPER!

**Has high conductivity,
good machinability...
saves production time!**

Chase Tellurium Copper gives you the advantages of high conductivity *plus* good machinability.

Chase Tellurium Copper can be machined with tool speeds and settings similar to those used with Free-Cutting Brass, permitting high rates of production. But, unlike Free-Cutting Brass, Chase Tellurium Copper can be *hot worked* easily, and can be cold worked almost as extensively as pure copper.

For more information on Chase Tellurium Copper, check the coupon below.



Chase

BRASS & COPPER CO.

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The Nation's Headquarters for Brass & Copper

Albany†	Chicago	Detroit	Los Angeles	New York	St. Louis
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Boston	Dallas	Indianapolis	Newark	Providence	Waterbury
Charlotte†	Denver	Kansas City, Mo.	New Orleans	Rochester†	(sales office only)

FREE

Chase Brass & Copper Co.
Waterbury 20, Conn.
Dept. Purch. 255

Gentlemen:

Please send me your free Tellurium Copper booklet.

Name _____

Position _____

Firm _____

Street _____

City _____

State _____

For More Information Circle No. 194 on Inquiry Card—Page 17

FEBRUARY, 1955

159



EVEN if the cost per piece is actually higher, if the gears you use in your product are precision-engineered by Perkins, the *heart* of your product — its power transmission system — will function more efficiently. This factor is especially valuable when automation enters the production picture. In that case, *lack of functional precision*, could easily result in speeding up the manufacture of faulty products — a truly horrendous possibility.

Figured on the basis of trouble-free performance alone, the ultimate cost of Perkins Gears is considerably lower than their initial cost-per-piece would indicate. Best of all, even the initial cost of Perkins

custom-made Gears may be competitive. And that is something you can quickly and easily determine by asking us to quote on your requirements.

PERKINS MAKES:

to customers' specifications, in all materials, metallic and non-metallic: bevel gears, ratchets, sprockets, ground thread worms, spiral gears, helical gears, spur gears with shaved or ground teeth.

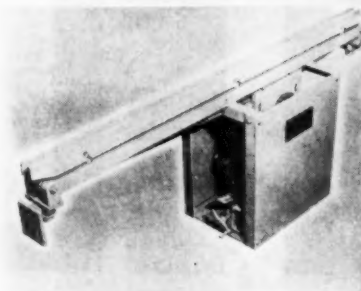
NOTE: The PERKINS PRECISION SPRING COILER is the latest development in the spring coiler field and eliminates entirely the use of arbors and long set-up time. It is a complete self-sufficient machine and enables you to make the spring you want when you want it — in seconds. The coiler produces any type of spring, in any diameter and any pitch with this range: Wire sizes .005 to .125. Diameter, from 3/32" to 12" and larger. Size of the compact coiler is only 7 1/2 x 16". A POWER MODEL is available. Information on request.

PERKINS MACHINE & GEAR CO.

WEST SPRINGFIELD, MASSACHUSETTS

For More Information Circle No. 195 on Inquiry Card—Page 17

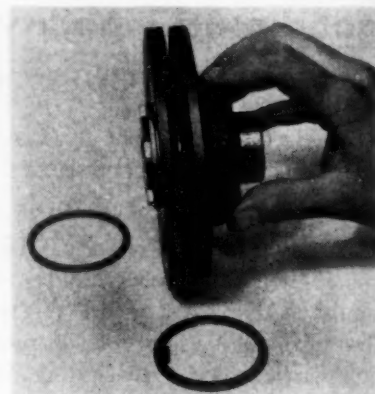
Transfer Conveyor Through-Feeds Cylindrical Work



The unit through-feeds cylindrical work to centerless grinders, special polishing or inspection machines. It is adapted to a variety of industrial equipment. The entire unit is self-contained. It is powered with a 1/4 hp, 220/440 v, 3-phase motor. Feed rate is controlled with a variable speed drive and a range of 7 to 28 fpm is available on the standard unit. Length of the standard unit is 60" over-all. It is made by Feedall Machine & Engineering Co., Willoughby, Ohio.

Circle No. 68 on Inquiry Card—Page 17

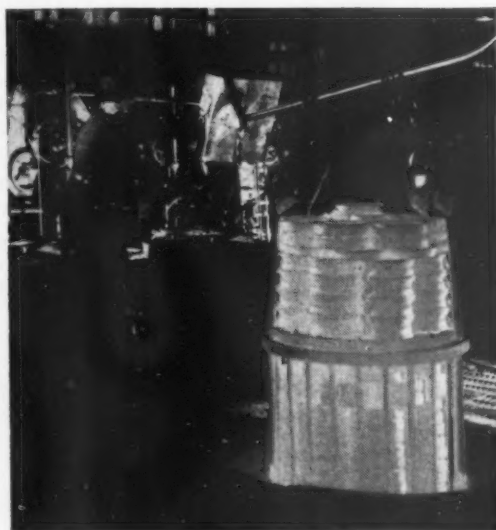
Torque Limiters Protect Against Drive Overloads



An improved line of machinery drive overload protection devices is now available. They feature high-friction, wearproof friction discs and a new nut locking arrangement. The units are slip-type friction clutch devices upon which such drive components as standard type. A plain plate roller chain sprockets, special V-belt pulleys or gears can be mounted. They act as shear pin mechanisms and avoid the time and labor to insert new shear pins. When an overload occurs, the sprocket or related drive component breaks away from the clutch discs and slips at from 1/2 to 1/3 the torque setting until motor is shut off and overload condition is corrected. They are a product of Morse Chain Co., 7601 Central Ave., Detroit 10, Mich.

Circle No. 69 on Inquiry Card—Page 17

The story behind a number



TO CASE-HARDEN EVERY RACE AND ROLLER, we built the world's largest battery of carburizing furnaces, man them 168 hours a week. It's typical of the many costly steps that go into Timken® bearings to put more value into *your* products.

IT HELPS DESIGN TOMORROW'S BEARINGS. Can Timken bearings be made to last even longer? A continuous, large-scale research program is helping us find out. This machine, for instance, tests the effect of vibration on bearings. Quality and service make Timken bearings your number 1 value and their public acceptance helps you sell your Timken bearing equipped products. So when you specify a bearing number, specify "Timken" along with it. The Timken Roller Bearing Company, Canton 6, Ohio. Canadian plant: St. Thomas, Ontario. Cable address: "TIMROSCO".



THE NUMBER 09067 on the bearing cone shown above—coupled with 09195 on the cup—tells a short story. It says it is a tapered roller bearing of a certain size. But since the trade-mark "Timken" is also stamped on the bearing, the number tells a top P. A. even more. It tells the complete story about the bearing's quality and the service that goes with it.



Quality, service and public acceptance make **TIMKEN No. 1 for VALUE**

TRADE-MARK REG. U. S. PAT. OFF.

NOT JUST A BALL  NOT JUST A ROLLER  THE TIMKEN TAPERED ROLLER  BEARING TAKES RADIAL  AND THRUST  LOADS OR ANY COMBINATION 

For More Information Circle No. 198 on Inquiry Card—Page 17

FEBRUARY, 1955

163



the STAMP of PERFECTION

11011 VINYLITE Stamp Dies
by DIMOND-UNION

are the answer to all your marking needs.

Vinylite is ideal for permanent stamping.

It is wonderful on metal and all non-porous surfaces. It is solvent, grease-resistant, and acid proof. This means greater span of marking life for your stamp.

Vinylite delivers super-sharp impressions.

This deep-molded Vinylite Stamp always delivers a precise, permanent, super-sharp impression. The deep molding process minimizes clogging and cuts time lost for cleaning to practically nothing.

Vinylite is resilient.

Dimond-Union Vinylite Stamps are cushioned by a timed curing process that gives them the same cushiony elasticity of rubber yet with all of Vinylite advantages. It makes impressions on irregular surfaces with amazing smoothness.

Vinylite is versatile.

Vinylite is highly functional and can be adapted to any marking device especially where depth and sharpness of impression are important.

Dimond-Union is equipped to deliver fast, quality service to meet your most exacting demands. No matter how large or small a quantity, any design can be duplicated, affixed permanently to your marking device, or Dimond-Union will make a new design or stamping device to your order.

*Call or write Dimond-Union Stamp Works
for The Stamp of Perfection!*

Use this
coupon for
FREE
sample
and full
information.

DIMOND-UNION STAMP WORKS			
81 WASHINGTON ST., BOSTON 8, MASS., TEL: LAfayette 3-7130			
Yes, I would like to have			
<input type="checkbox"/> FREE Vinylite Sample and Quotations		<input type="checkbox"/> A Salesman Call for Appointment	
Name			
Company			
Street			
City	Zone	State	

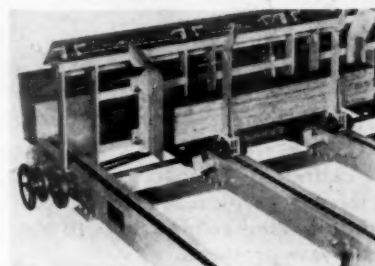
For More Information Circle No. 199 on Inquiry Card—Page 17

Fluorescent Fixtures for Maximum Light



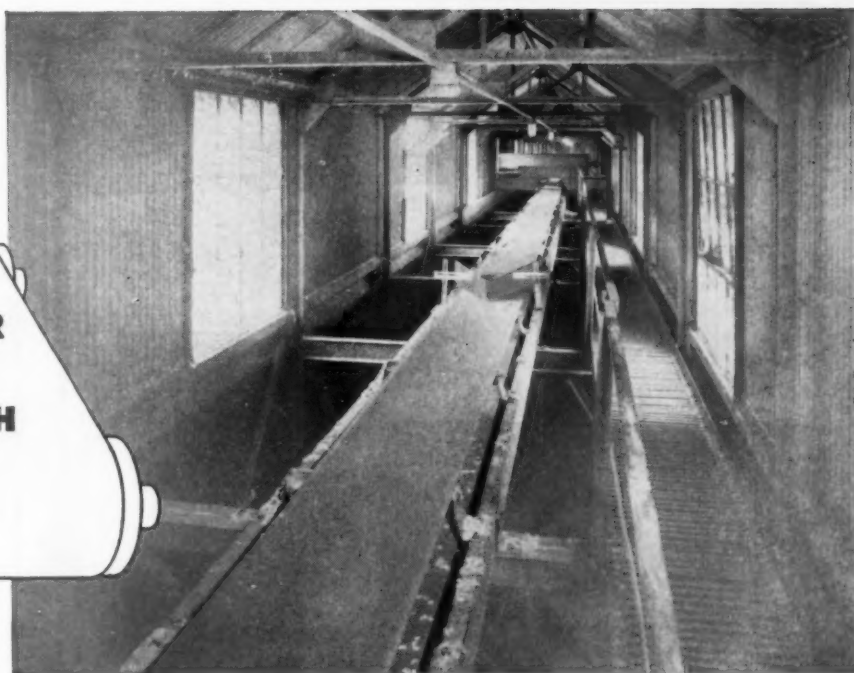
A new series of multi-purpose large strip fluorescent lighting fixtures has been designed for use where quantity of light and economy of installation are major considerations. The multi-lamp series is available in two, three, four, six and eight lamp fixture type. In addition, the fixtures are made in four, eight, and sixteen foot lengths. It is thus possible to make convenient combinations of fixtures to complete any required row length. Mounting methods enable the multi-lamp strip fixtures to be installed with maximum flexibility. They may be surface-mounted, or pendant-mounted by chain, pipe, messenger cable or with slide grip hangers. Manufacturer is Sylvania Electric Products, Inc., 1740 Broadway, New York 19, N. Y. Circle No. 70 on Inquiry Card—Page 17

Corrugated Containers Fastened from Outside



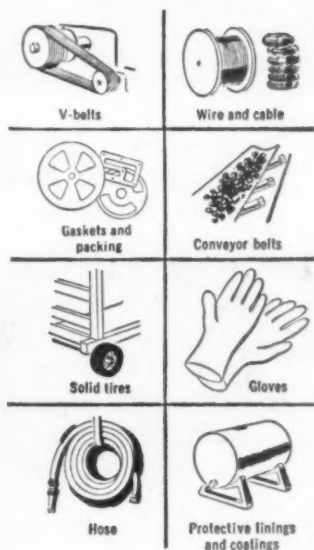
Bostitch, 1021 Mechanic St., Westerly, R. I., has introduced a stapling machine for fastening the top and bottom flaps of corrugated containers entirely from the outside. The stapler is equipped with two stapling heads that drive wide-crown, preformed staples at the rate of 100 per minute. As staples are driven into the container, they run in the grooves of retractable anvils, which clinch the staples securely on the inner side and quickly withdraw. Bottom stapling is done by an inverted head that operates from a stationary position below the roller-type work table. The top head adjusts itself automatically to height of the container. Corrugated board of almost any thickness can be stapled.

Circle No. 71 on Inquiry Card—Page 17



Neoprene conveyor belt lasts 4 times longer than other types . . . saves \$4,800 for plant

SPECIFY NEOPRENE IN THESE PRODUCTS:



At a large California seed-processing plant, ordinary conveyor belts lasted only two years at most. Attack by oils from cottonseed, flax seed and soya beans separated the belt plies and caused surface blisters. And the V-shaped wooden "plows"—used to nudge seeds off the belt into storage bins—snagged the blisters and tore the belt covers.

Then a 5-ply belt with a neoprene cover was installed. After eight years the neoprene belt shows no signs of deterioration or serious wear—*four times the service life of the other belts*. And its condition indicates it will be good for another two to four years! The saving on this one belt alone is already \$4,800—another example of how neoprene's retention of abrasion resistance even after severe exposure to oil and grease saves on replacement costs.

Longer service is typical of the important advantages that thousands of neoprene products are bringing industry today. While Du Pont makes no finished products of neoprene, your supplier of rubber goods will gladly tell you about the neoprene products he sells.

MAIL THIS COUPON TODAY



FREE! THE NEOPRENE NOTEBOOK—Every issue describes new products, unusual applications of neoprene . . . shows how neoprene cuts maintenance costs. Clip and mail this coupon to get on the mailing list. E. I. du Pont de Nemours & Co. (Inc.), Rubber Chemicals Division P-2, Wilmington 98, Delaware.



Name _____ Position _____
 Firm _____
 Address _____
 City _____ State _____

**The P. A.
can be sure
with CM!**

CM Hoists never let a P. A. down. Put these hoists on the job and forget about them. Here they are... a type and size for every purpose:

CM HOISTS



CM METEOR® ELECTRIC WIRE ROPE HOIST

$\frac{1}{2}$ to 5 ton capacities

For Heavy Duty Production. Available with a variety of suspensions. Operates on 220 or 440 volts. Only 110 volts in push button control. Single and two-speed operation. Low headroom. Many features assure safe, dependable operation.



CM COMET® ELECTRIC CHAIN HOIST

$\frac{1}{2}$ to 2 ton capacities

For Production Line Service. Pendant rope and push button controls. For use with 110 or 220-440 volt supplies. Complete mechanism lifetime lubricated. HERC-ALLOY flexible load chain.

CM CYCLONE®

$\frac{1}{2}$ to 10 ton capacities

High Speed Hand Hoist. For maintenance, shipping and other departments. Rugged lightweight construction. 1 ton model weighs only 36 pounds. Lifetime lubricated.

CM PULLER®

$\frac{1}{2}$ to 6 ton capacities

The "One Man Gang." Tool of a thousand and one uses. Lifts or pulls at any angle. Lever handle operation. Automatic load brake. $\frac{1}{2}$ ton model weighs only 13 pounds.

ALSO CM Trolleys and Cranes

CALL THE CM DISTRIBUTOR FOR FULLY ILLUSTRATED LITERATURE, PRICES AND QUICK DELIVERY FROM STOCK.



CHISHOLM-MOORE HOIST DIVISION

COLUMBUS McKINNON CHAIN CORPORATION

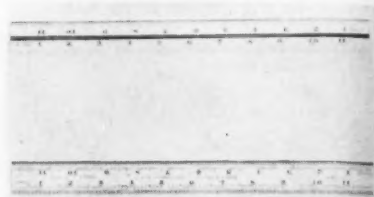
TONAWANDA, NEW YORK

REGIONAL OFFICES: NEW YORK, CHICAGO, CLEVELAND

In Canada: McKINNON COLUMBUS CHAIN LIMITED, ST. CATHARINES, ONTARIO

For More Information Circle No. 201 on Inquiry Card—Page 17

12" Stainless Steel Rule



Browne & Sharpe Mfg. Co., Providence 1, R. I., announces a 12" stainless steel blade for combination squares and sets. The black graduations are easily read and the stainless steel is resistant to moisture, perspiration, and other corrosion-causing agents.

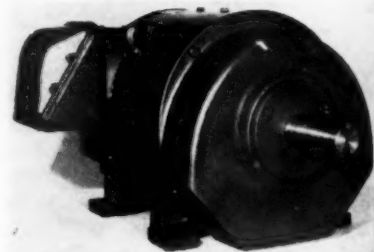
Circle No. 72 on Inquiry Card—Page 17

Wire Bound Container

A modified, special-purpose wire-bound container, fully enclosed and having corrugated panels stitched to two edge-slats, reinforcing each corner is in production by The American Box Co., 1900 W. 3rd St., Cleveland, Ohio. Among the advantages claimed for it are lighter weight and lower cost than wood veneer panels. At the same time, being completely enclosed, it affords dust-proof protection and provides overall printing surfaces for advertising, etc. Wood edge-slats are added to reinforce the corners. The result is a lightweight, yet extra-protective combination wire-bound and corrugated container for packaging various manufactured articles.

Circle No. 73 on Inquiry Card—Page 17

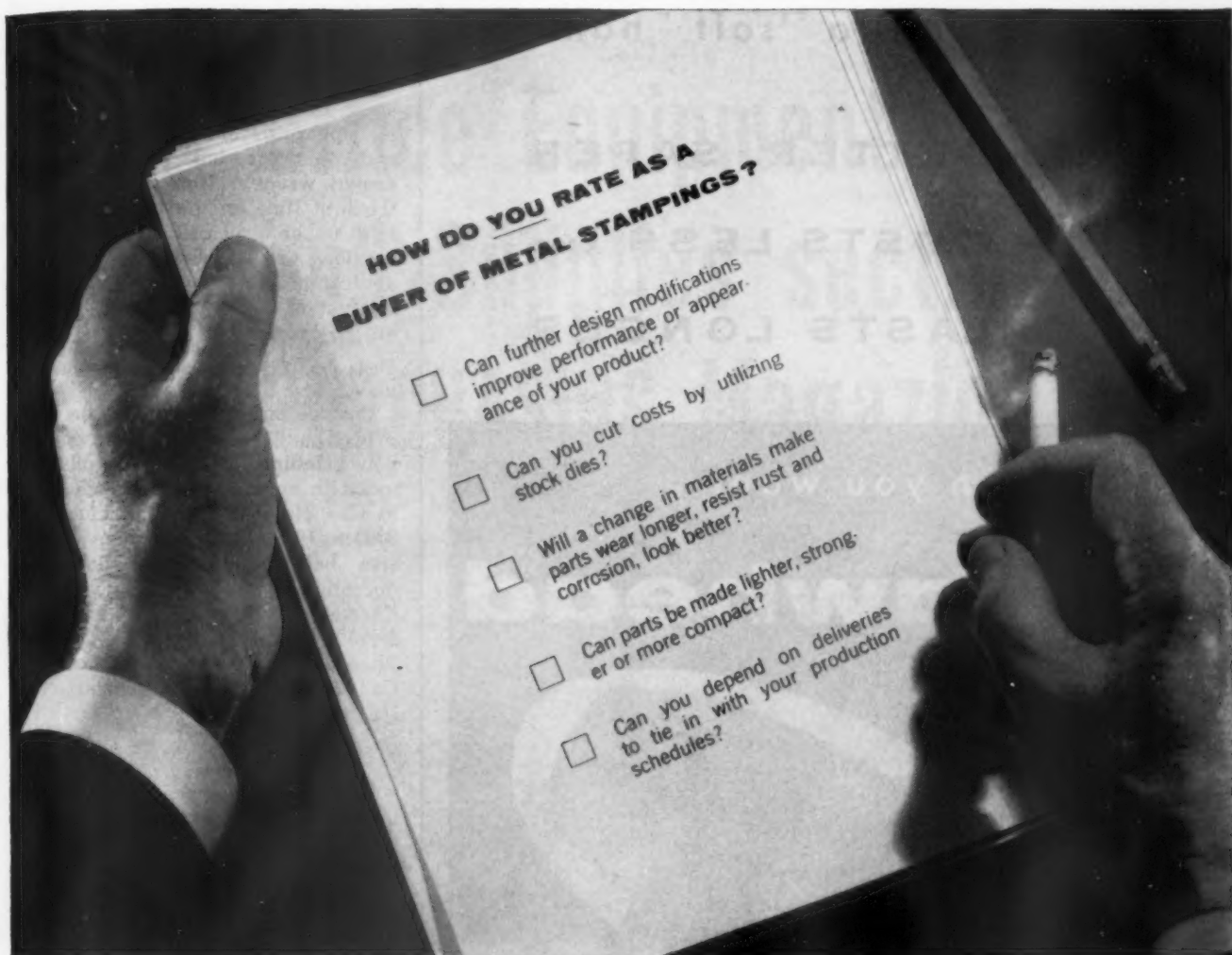
D-C Motors Have Fast, Quick Response



A line of industrial d-c motors are said by the manufacturers, Reliance Electric & Engineering Co., 1088 Ivanhoe Rd., Cleveland 10, Ohio, to produce the fastest and most accurate response ever offered in a standard design motor. They are claimed to be twice as effective in many applications as any other motor now produced. Currently, the motors are produced in sizes from 20 hp to 100 hp.

Circle No. 74 on Inquiry Card—Page 17

**USE INQUIRY CARD
PAGE 17**



can your metal stamped parts be improved or produced at greater profit* to you?

To tell you "how" and "why" it may be possible, The Crosby Company has just published an informative report: "Removing the Questionmarks from Metal Parts Procurement". In it, you will find specific ways in which Crosby can assist you in checking every major design and cost factor relating to metal stamped parts.

Much more than a production stamping

plant that merely "bids" on jobs, The Crosby Company makes a thorough study of every metal stamping inquiry. You receive an *Engineered Quote*. Often products are improved, money saved and profits increased as a direct result.

You can obtain the complete story without cost or obligation. Simply fill in and mail the coupon below.



***REMOVE ALL DOUBT—
GET A CROSBY ENGINEERED QUOTE**

THE CROSBY CO. 219 Pratt Street, Buffalo 4, N. Y.

Mail a copy of your report, "Removing the Questionmarks from Metal Parts Procurement" without cost or obligation.

Name Title

Company

Address

City Zone State

SALES OFFICES: Buffalo • Cleveland • Detroit • Chicago • New York • Philadelphia

For More Information Circle No. 204 on Inquiry Card—Page 17

When you want a "soft" hammer that's

- ▶ **BETTER, SAFER**
- ▶ **COSTS LESS AND**
- ▶ **LASTS LONGER**

That's when you want

C/R Jawhead



The best "soft" hammer you can buy!

Careful engineering tests prove that C/R processed rawhide hammers will do more work with fewer blows, produce less worker fatigue. The secret—controlled rebound through special processing of rawhide fibers—permits longer contact to transmit force to the striking surface. C/R Rawhide faces give full protection to delicate parts and finishes, will not crack, spark, nor become brittle at low temperatures. C/R Safety-Flare handle assures a non-slip, comfortable grip. C/R Jawhead hammers are designed to withstand the heaviest industrial use . . . and they cost you considerably less than most comparable "soft faced" striking tools. Be sure to use C/R Jawheads—always.

- Change faces in seconds. Threaded collar locks them in. They can't slip or fly off.



Buy C/R Jawheads from your local industrial supplier.

CHICAGO Rawhide MFG. CO.
1301 Elston Ave. Chicago 22, Illinois

In Canada: Super Oil Seal Mfg. Co., Ltd., Hamilton, Ontario

Also Noted . . .

Manufactured to precise tolerances for installation in heat transfer apparatus and air conditioning systems, **corrosion resistant cold drawn wrought iron tubing** is for the first time on the market. It is said to be especially suitable for handling salt and brine solutions in air conditioning systems. It is a product of A. M. Byers Co., Pittsburgh, Pa.

Circle No. 75 on Inquiry Card—Page 17

Surface finish is said to be improved and belt life increased by new **grinding and polishing oils** for use with abrasive belts. Production is also claimed to be as much as 50% to 100% higher on many abrasive belt grinding and polishing operations. There are two types: Excelene NF is for use with non-ferrous metals; Excelene FD with ferrous metals. D. A. Stuart Oil Co., 2727 S. Troy St. Chicago 23, ILL., makes them.

Circle No. 76 on Inquiry Card—Page 17

Containing chemically stabilized iodine and retaining all the germicidal properties, an **all-purpose germicidal cleaner** has been developed by West Disinfecting Co., Long Island City, N. Y., for industrial and institutional use. While killing resistant varieties of bacteria and germs in a matter of minutes, the sting, irritant and toxic properties of iodine have been all but eliminated.

Circle No. 77 on Inquiry Card—Page 17

Chicago Gasket Co., 1271 W. North Ave., Chicago, Ill., is introducing a line of **teflon O-rings**. It combines for the first time in an O-ring the features of complete resistance to chemical attack, and high temperatures with extremely low coefficient of friction, with resistance to contamination of taste, odor or coloring of foods, drugs or high purity chemicals.

Circle No. 78 on Inquiry Card—Page 17

A new line of **silver brazing alloys and flux** is available for all types of production jobs. The brazing flux is in paste form and will not freeze, crystallize nor separate. The residue rinses off easily in hot water. The alloys and flux provide joints that are exceptionally strong. They are a product of Air Reduction Sales Co., 60 E. 42nd St., New York 17, N. Y.

Circle No. 79 on Inquiry Card—Page 17

For More Information Circle No. 205 on Inquiry Card—Page 17

Office Equipment and Supplies section of PURCHASING Magazine

FEBRUARY, 1955



The Purchasing Agent of the engineering and construction firm of Stearns-Roger Mfg. Co., Denver, now works in this smart, modern office of the firm's new headquarters building. All equipment in the room is finished in decorative copper tan.

PURCHASING MAGAZINE—A CONOVER-MAST PUBLICATION

205 EAST 42ND STREET, NEW YORK 17, N. Y.

OFFICE EQUIPMENT

News



Copy-Craft, Inc., New York, has introduced two new models of **photo-copiers**. Called the Photorapid Compak, they are available in 8-1/2" x 14" and 14" x 17". In addition to normal copying, the machine can be used to make transparencies for use as masters for diazo or blueprint machines or for burning in positive offset plates.

Circle No. 80 on Inquiry Card—Page 17

Burroughs Corp., Detroit, Mich., has introduced a new line of medium priced **accounting machines**. The new line, Director 600, features a wide throat of the front feed carriage to make form insertion a smooth, one hand operation. Front and rear guides keep the forms straight and a full-width plastic aligning device provides hairline accuracy.

Circle No. 81 on Inquiry Card—Page 17

The Pengad Companies, Bayonne, N. J., have announced a new type of **copy paper** that they claim eliminates carbon paper from office routine. Called Autoscript, it has a specially processed finished which permits it to combine the properties of carbon paper and ordinary second sheets. As many as 12 duplicate copies can be made at once, either on a typewriter or with an ordinary sharp pencil or ball point pen. It is available in different colors.

Circle No. 82 on Inquiry Card—Page 17

Consolidated Business Systems, Inc., New York City, manufacturers of business forms, has announced a new 12-page catalog. It shows the complete line of Redifix snap-apart business forms, one-time carbon sets, continuous forms and marginally punched forms. All forms are illustrated and lists of prices and sizes are included. Copies are available on request.

Circle No. 83 on Inquiry Card—Page 17



Eliminating or shifting columns automatically is possible on the Ormig systems duplicating machine sold and serviced throughout the U. S. by **Copy-Craft, Inc., New York City**. It is possible to select data from a spirit master by columns in various combinations without masks or blockouts. A prime feature of Ormig is its fully automatic line selector machine. Using only one spirit master, and with only one feeding, this machine permits the printing of one to three individual lines in combination with both constant and variable heads—all without masks, blockouts or second masters. It is of particular value in production control systems and parts-order systems. The Ormig line runs from a small portable hand model to a high speed fully automatic machine.

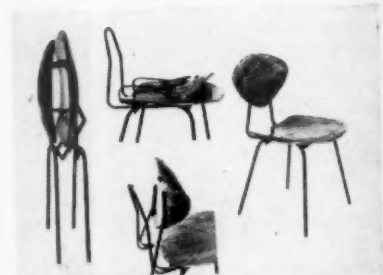
Circle No. 84 on Inquiry Card—Page 17

To extend the range of usefulness of the Verifax Copier, **Eastman Kodak Co., Rochester, N. Y.,** has announced a **card-weight Verifax print paper**. It is intended for applications where the user would like to make Verifax duplicates of present card files, create card file copies of other material, or simply make Verifax copies on a stock suitable for frequent handling. Exposure, development and transfer are the same as regular Verifax print paper. Card-weight paper sizes are 8-1/2" x 11" and 8-1/2" x 14" and are available in packs of 200.

Circle No. 85 on Inquiry Card—Page 17

The Office Executives Association of New York has announced the publication of its third annual catalog covering products exhibited at the National Business Show. Copies can be secured, as long as the supply lasts, by writing to Alfred T. Ruf, president, OEA, 33 West 42nd St., New York 36, N. Y.

Circle No. 86 on Inquiry Card—Page 17



Bostrom Manufacturing Co., Milwaukee, has a new molded wood and metal **chair** which combines rigid framework and stability of permanent furniture with a folding mechanism. Its height is 18 inches from floor to seat and when folded is less than 6 inches wide. It stands supported on its four legs when folded.

Circle No. 87 on Inquiry Card—Page 17

(Please turn to page 177)

UNDER THE NEW SYSTEM . . . With Mobile Kardex file at desk-side, expeditor instantly refers to order copy, takes indicated action and makes proper notations. Office-time saving is estimated at 80%.



UNDER THE OLD SYSTEM . . . a file clerk pulled follow-up copy of order for each reference or notation desired by chief expeditor. Copy was later refiled.

expedited!

15,000 purchase orders totaling 16 million dollars

RECORD HANDLING ECONOMIES "AS HIGH AS 80%" CAN BE YOURS, TOO!

A simple and economical new system for handling purchasing records increases efficiency . . . saves valuable time for the Machinery Division, Dravo Corporation, Pittsburgh, Pennsylvania.

"We estimate that the direct economy in clerical time and effort, in avoidance of constant filing and refiling, runs as high as 80%. In the face of steadily increased volume, we have eliminated departmental overtime, and there is no backlog of unfinished work."

These words of Mr. Gordon P. Smith, Purchasing

Agent for the Machinery Division, Dravo Corporation refer to their system for expediting purchasing records using Remington Rand Kardex Visible Control Methods.

Under the system used by Dravo Corporation, "the control copy never needs to be removed from the file, and can always be located instantly."

For free literature and full details about the work and time saving system employed at Dravo, write for CH954, Room 1239.

Remington Rand

315 FOURTH AVENUE, NEW YORK 10, NEW YORK

For More Information Circle No. 207 on Inquiry Card—Page 17

FEBRUARY, 1955

175

More Production At the Typing Station

GREATER efficiency and reduced costs go together, and such an objective is just as important in the office as it is in the factory. Naturally, in the office, the greatest concentration of effort has been on the most common work station, the typing station. Many improvements have been made in the machines themselves, but other efforts have been expended in auxiliary equipment to boost the station's efficiency and production. Not least among these items is the relatively simple device called a copyholder.

There is nothing particularly complex or involved about copyholders. They are simply devices to hold copy. They may be a metallic, wood or plastic stand to hold a steno pad, paper, etc., off to the side of the typewriter. Or, the copyholder might be a little more mechanical with a means of raising the copy, etc., and be fastened behind the typewriter for straight-ahead reading.

At any rate, regardless of the particular type of device, its contribu-

tion to improving the efficiency of the typing station is a definite thing.

In a large midwestern university, for instance, a study was made to determine the value of a straight-ahead type copyholder in improving the speed and accuracy of a typist. The experiment was divided into two time elements, one lasting six months and the other lasting two complete school semesters. One of the final tests showed that the user of the copyholder produced 18% more words in the same period of time as a typist without the holder. Also, the rate of error with the copyholder was considerably less than the other typists.

While such tests are always of interest to businessmen, practical or on-the-job results are generally considered more conclusive. Yet, such on-the-job details usually lack the controls or experimental analysis for proper evaluation.

However, coming down to the more familiar levels, one can think of the copyholder and its relation to the business bug-a-boo of fatigue. Just as the efficient and productive

factory line is kept as clear as possible of fatiguing elements, so too must the productive office line.

The constant craning and twisting about of a typist during attempts to copy material lying on a desk is an extremely fatiguing activity. And, in most cases, copy work is usually assigned to one girl rather than being spread around the office. Thus, the element of fatigue is an important factor in affecting one particular phase of an office operation, which, in turn, must have its effect on other office procedures.

While it makes little sense to create the impression that the copyholder is the great invention that will solve all the problems of copying in an office, it is true that the device is good. As an investment, quite inexpensive, it is sound. But, regardless of whether its use in an office is apparent or not, copyholders bear investigation for their potential in improving the efficiency and production of the typing station.



This simple stand made by Bankers Box Co., Chicago, will stand on a desk off to the side of a typewriter and hold anything from a sheet of paper to a fairly large volume.



The 2-C copyholder of Lit-Ning Products Co., Fresno, Calif., has a device to hold the book open and a means of indicating the line to be copied.



Remington Rand's Line-a-time copyholder fits behind the typewriter for straight-ahead copying. Depressing the lever at lower right raises the copy one or more lines.

New
MARATHON
BLACK
HECTO MASTERS
are
clean



The unpleasant stain and smear that once was the trademark of hectorograph spirit duplicating is rapidly becoming a thing of the past—thanks to Columbia research and development. New, Black Marathon Ready-Master Units are clean—clean because Columbia's exclusive ink does not "blossom" on contact with the skin—clean because protective Supercoating covers carbon surface and all edges. Yes, the results you can obtain from Marathon Black Ready-Master Units will prove how much Columbia engineering has advanced the quality of hectorograph duplicating.

Use the coupon below attached to your business letterhead to obtain your copy of the Free booklet, "Quality Duplicating With Hectograph".



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Send booklet,
"Quality Duplicating With Hectograph".

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Company _____
Address _____
City _____ Zone _____ State _____

For More Information Circle No. 208
on Inquiry Card—Page 17
FEBRUARY, 1955

Faster, easier photocopying with Remington Rand's new, low cost Roto-flo, is described in an illustrated leaflet just released by Remington Rand, Inc., New York City. Teamed with the company's Transcopy, the Roto-flo prepares photocopies of records up to 14" wide, of any length, giving positive prints in less than one minute. The leaflet shows, photographically, the four steps in the process. Copies of the leaflet, P-385, are available on request.

Circle No. 88 on Inquiry Card—Page 17

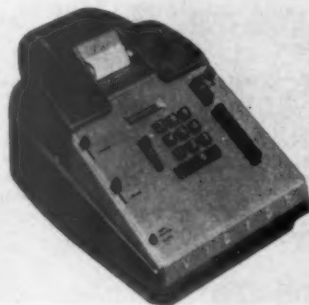


Remote control, multi-station network dictation is available from Peirce Dictation Systems, Chicago, with their Peirce Microphone Magnetic Belt Network Dictation System. An unlimited number of microphone dictation stations can be tied into the network. All controls for dictate, back-up, listen, correction and end-of-message are contained in the lightweight microphone station.

Circle No. 89 on Inquiry Card—Page 17

Semi-Hex Office Pencil, a wood-cased pencil made by General Pencil Co., Jersey City, now features a lanolized lead. It is claimed that lanolin, the super-lubricant, gives a unique smoothness to the pencil's lead and helps it slide across the paper with a minimum of pressure.

Circle No. 90 on Inquiry Card—Page 17



The Victor Adding Machine Co., Chicago, is introducing a new Multi-O-Matic figuring machine permitting completely automatic multiplication on printed tape. It permits operators to run problems and retain totals for further multiplication, eliminating the need for re-entry of figures. The Select-O-Matic feature, which permits automatic totals and sub-totals by merely depressing the add-bar or dual total key, is standard equipment.

Circle No. 91 on Inquiry Card—Page 17

Sparkling

Color

with a

feather touch

Colorbrite

another of the
more than 3,000

EBERHARD FABER

products people
rely on!

In 26 brilliant colors. Colorbrite is preferred by business people because it leaves a vivid trail of color at a mere feather touch. Writes as smoothly as a black lead pencil. Takes a fine, sharp, long-lasting point. Ideal for charts, figures, graphs and forms. **Waterproof—smearproof—fadeproof—permanent!**

Trademarks Reg. U. S. Pat. Off.

Since 1849

**EBERHARD
FABER**

puts its quality
in writing

NEW YORK • TORONTO

For More Information Circle No. 209
on Inquiry Card—Page 17

SOLUTION!

When Your Budget Demands **LOW COST**
Yet Your Office Requires **QUALITY!**

New
HARTER 26
POSTURE CHAIR

Only
\$26⁹⁰

Slightly higher in
South and West



Along with low price, the Harter 26 gives you a wealth of style, comfort and dependability. *There is no more serviceable stenographic posture chair at any price.* Base is formed and welded into one sturdy piece. Easy, accurate chair adjustments are made by three handwheels. No flimsy adjustments here! Seat has the comfort of foam rubber. Upholsteries and finishes are the finest. At \$26.90, the Harter 26 is your solution to today's need for both low price and high quality.

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HARTER CORPORATION, 229 Prairie Street, Sturgis, Michigan
Send me literature on the 26 Chair and include name of nearest Harter dealer. Also include literature on Executive chairs ☐, Reception Room and Conference Room chairs ☐.

Name _____
Address _____
City _____ State _____

For More Information Circle No. 210 on Inquiry Card—Page 17



A modern desk and work table lamp has been introduced by **Luxo Lamp Corp., Tuckahoe, N. Y.** It has an aluminum shade, manueverable arm of steel tubing and springs and a steel base. It turns a full 360 degrees and can be extended up to 37 inches. It is available in ivory, ebony black, sea foam green, dove grey and mahogany. There is also a model with a 30 inch arm length available.
Circle No. 92 on Inquiry Card—Page 17

A **hectograph unit** this is clean to handle from the preparation to the duplication has been announced by **Columbia Ribbon & Carbon Mfg. Co., Inc., Glen Cove, N. Y.** Called **Marathon Blue Supercoated Ready-Master Unit**, it makes use of a distinctive blue, non-water soluble dye sealed into the unit by a special supercoating process.
Circle No. 93 on Inquiry Card—Page 17



Personalized touch control is one of the features on a new deluxe series of adding machines of **National Cash Register Co., Dayton, Ohio.** The series improves NCR's "live" keyboard operation (elimination of motor bar for adding) with a lever that adjusts the keyboard touch to the operator's preference. In addition, the machine is quieter through the use of fiber glass insulation, nylon gears and "floating" the internal mechanism on rubber pads to prevent telegraphing noise. Other features include the ability to add numbers without printing any figures except the answer; easy to read dials; and a switch control for single or double spacing.
Circle No. 94 on Inquiry Card—Page 17

Pitney-Bowes, Inc., Stamford, Conn., manufacturers of postage meters and mailing machines, has been named a principal distributor of the paper collating equipment of the Macey Co., part of Harris-Seybold, Inc., Cleveland. Harris-Seybold and Pitney-Bowes will operate as the two exclusive direct selling agents of Macey equipment, competing in the various markets where their salesmen normally sell their products.

W. Norman McLeod has been elected chairman of the board, and Thomas S. Duncanson has been made president of **Moore Corp., Ltd.**, and its subsidiaries, Moore Business Forms, Inc., and F. N. Burt Co., Inc.

The election of John E. Sturm as controller and Donald C. Adams as treasurer has been announced by **Addressograph-Multigraph Corp., Cleveland.**

Friden Calculating Machine Co., Inc., San Leandro, Calif., has appointed R. C. Lindgren as manager of the Computyper Division of the company. Mr. Lindgren started his career with Friden in 1936 as a serviceman in the firm's Sioux City office. His latest post was sales manager at El Paso, Texas. His replacement for El Paso is Richard Bulkan, manager of the Friden office in Charleston, W. Va. Mr. Bulkan is, in turn, being replaced by Hugh Conway, a veteran of 25 years in calculating machine sales.

Leading manufacturers of office machinery and equipment are planning to display their latest developments at the 36th International Conference and Annual Office Machinery and Equipment Exposition of the **National Office Management Association.** The "million dollar" exposition will be held in Toronto, Canada, May 22-26. Machinery and systems displays will be in Toronto's Mutual Arena while conference sessions will be held in the Royal York Hotel.

Donald F. Whitehead, administrative assistant to the vice president for sales, has been appointed to the newly-created post of assistant sales manager of **The Standard Register Co., Dayton, Ohio.** Mr. Whitehead has been with Standard since 1936. In 1951 he received his appointment to the administrative assistant's post, following nine years as manager of the company's Marketing Department.

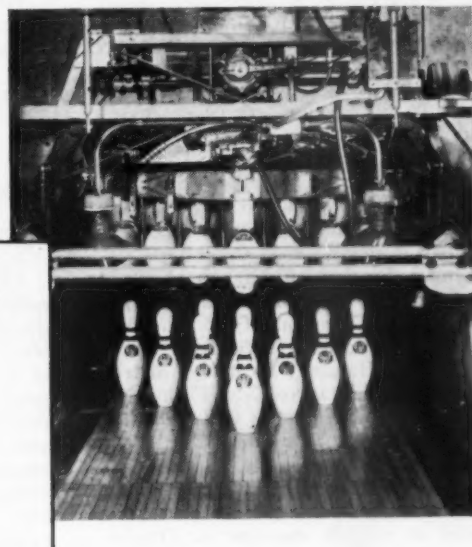
J. D. Farr, sales manager, Office Typewriter and Supplies Department, **Royal Typewriter Co., New York,** has announced eight managerial changes.

FOR FURTHER INFORMATION ON PRODUCTS IN THIS ISSUE PLEASE USE INQUIRY CARD ON PAGE 17

Prominent Users of Strathmore Letterhead Papers: No. 114 of a Series

This AMF Pinspotter sets, clears and re-sets bowling pins, the Pindicator flashes hits, and balls are returned in a continuous, fully automatic operation!*

• T. M.



The highest scorer is QUALITY!

The AMF Automatic Pinspotter is only one of the new machines which the ever-expanding American Machine & Foundry Company has introduced in recent years. Before World War II, AMF only made special purpose machines for the bakery, textile and tobacco industries. During and since the war it has produced a great amount of military equipment, and has entered several other fields with new divisions devoted to the manufacture of such products as bicycles, generators and relays.

Because AMF insists that all its products must meet rigorous performance standards, its development programs are exceptionally thorough. The Pinspotter, for example, was perfected after exhaustive research and years of field testing. A similar high quality standard applies to all AMF business procedures, symbolized by its choice of Strathmore Paper for its letterhead.

When you examine Strathmore Letterhead Papers, it becomes obvious why countless prominent firms have selected them for their correspondence. Strathmore craftsmanship adds immeasurable expressiveness to a letter, and its quality defines the fine character of its user. Ask your supplier to show you samples of your own letterhead design on Strathmore papers.

STRATHMORE LETTERHEAD PAPERS: Strathmore Parchment, Strathmore Script, Thistlemark Bond, Alexandra Brilliant, Bay Path Bond, Strathmore Writing, Strathmore Bond. Envelopes to match converted by the Old Colony Envelope Company, Westfield, Mass.

STRATHMORE THIN PAPERS: Strathmore Parchment Onion Skin, Strathmore Bond Onion Skin, Strathmore Bond Air Mail, Strathmore Bond Transmaster.

STRATHMORE

MAKERS OF FINE PAPERS

Strathmore Paper Company, West Springfield, Massachusetts

For More Information Circle No. 211 on Inquiry Card—Page 17

M. D. Brown, formerly district manager at Dallas, is now southern regional sales manager with headquarters at Atlanta. H. W. Ulrey, formerly southern regional sales manager, has been named district manager at Atlanta. To fill the post of district manager at Dallas, D. L. Newell has been moved up from his post as district manager at Omaha. Another promotion is that of N. M. Quist, who moves up from Columbus, Ohio, manager to district manager at Detroit. G. W. Newman, formerly district manager at Atlanta, now becomes head of the operation at Columbus, Ohio. The new head of operations at Seattle, Wash., is, G. R. Hansen, formerly district manager at Salt Lake City. Filling Mr. Hansen's vacated post is C. L. Thompson, formerly a Salt Lake City typewriter salesman. Finally, it was announced that K. L. Sullivan, former salesman at Wichita, has been promoted to district manager at Omaha, succeeding Mr. Newell.

Grace Letter Co., sole distributor in the United States for Graforel ready-gummed cork letters, has moved its New York office from 5 East 47th Street to 77 Fifth Avenue.

The Holden Line Co., Cleveland, a pioneer in the field of fluorescent lighting, has passed to new ownership and management. The new president of the firm is Ellsworth M. Smith,

president and sales manager of the Canton Mfg. Co., Canton, Ohio. The executive vice president and treasurer is Earl R. Earnest, who was executive vice president of the Tyson Roller Bearing Co. and the Domar Co. of Massillon, and of the Heston & Anderson Division, St. Paul Foundry and Mfg. Co. The new management plans to manufacture and market a complete line of commercial and industrial fluorescent lighting fixtures.

John R. Stewart and V. R. Youngquist have joined The McBee Co., a division of Royal McBee Corp. Both were members of the board of directors of the Charles R. Hadley Co., Los Angeles. Mr. Stewart has been named manager of the Los Angeles branch and Mr. Youngquist has assumed sales promotional duties for the Western Division. Mr. Stewart joined Hadley in 1937 as a salesman in Chicago and held many positions with the company, including manager of the northern California district. Mr. Youngquist joined Hadley in 1942, after being west coast representative for Brandtgen and Kluge Automatic Printing Press Co. He was named vice president in charge of sales at the time of his resignation.

Royal Typewriter Co., New York, has added two new men to its comptroller's staff. A. C. Jannuzzo has been named assistant budget manager and J. A. Young, formerly assistant treas-

urer for Canadian operations, is now staff assistant to the comptroller. Mr. Jannuzzo was previously associated with General Foods Corporation. It was also announced, by the company, that D. W. Morison, assistant market research manager, had been promoted to market research manager. Mr. Morison joined Royal in 1951 as a sales research statistician. In his new post, he will provide marketing research services to all elements of the company. In addition to the promotions in the Royal Typewriter Co., additional appointments were announced for the Royal McBee Corporation. C. F. McCandless has been made director of market research for the firm. His activities will include market surveys, and analyzing competition and consumer buying habits. Also, in Royal McBee, it was announced that M. L. Frost is now management engineer for the corporation and that Earl A. Roy is manager of the Patent Department for the Royal Typewriter Company Division. Mr. Frost was previously associated with Sperry Products, Inc., Danbury, Conn., as assistant to the president. He will be responsible for various functions in connection with the organization of the corporation. Mr. Roy joined Royal in 1951 in its Engineering Department. He will now develop and administer patent policies and procedures of the company, and maintain liaison with research and engineering activities with respect to patent disclosures.



JET ERASER

Convenient, cylindrical stick eraser in attractive, transparent plastic holder. Tip unscrews so eraser stick can be moved outward. Red rubber for pencil erasing, gray rubber for ink. Pocket clip style for general use. Brush whisk style for typists. Refills. Tops for typing, accounting, drafting and professional use.

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World's Foremost
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Wee Bonny Blessing!

Figure how much inefficient erasers cost you every day, as girls correct shorthand and typing errors—take time to remove originals and carbons from machines—frequently do the work over!

Contrast the savings you achieve by using quality, uniform texture Weldon Roberts Erasers. Best for calming stenos' jitters; cleanly correcting errors.

Ask your dealer for Weldon Roberts Erasers specifically suited to your requirements.

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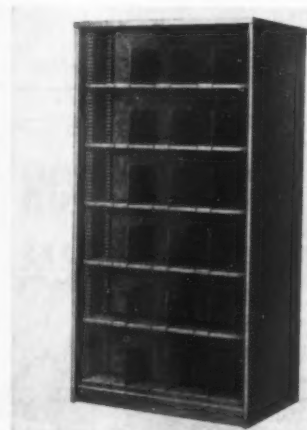
WE SHALL then enter a one year subscription for you and bill you (or your company) at a later date—at the one year rate of \$4.00.

MAIL IT TODAY!

Davidson Corp., Brooklyn, N. Y., has announced a new line of presensitized photo-offset plates and related chemicals. The new plates are being marketed under the trade name "Photorite." They are made of a special paper and can be used for all types of offset printing including solids, halftones and line. The manufacturer claims that length of run and dimensional stability are excellent. One solution development for short runs is all that is required for the new Photorites. Circle No. 95 on Inquiry Card—Page 17



A dual-purpose carbon ribbon typewriter has been introduced in the VisOmatic line of R. C. Allen Business Machines, Inc., Grand Rapids, Mich. Circle No. 96 on Inquiry Card—Page 17



The Borroughs Mfg. Co., Kalamazoo, Mich., a subsidiary of American Metal Products Co., Detroit, has announced that it is now producing open shelf filing units. The units are produced in single or double-face, in two heights, 72" and 84". They are 36" wide outside. The single-face depth is 12" and the double-face is 24". Sliding shelves are adjustable without bolting. File supports, 7" high by 9" deep, snap into place at any desired point on the shelves. Circle No. 97 on Inquiry Card—Page 17

Underwood Corp., New York, states that its electric typewriters are now available in three distinctive color styles. In addition to the standard Underwood gray, the Finger-Flite machines can be purchased in two-tone ivy green, brewster green and two-tone tan. Circle No. 98 on Inquiry Card—Page 17

ESTERBROOK DESK SET WITH *The Pen That Fills Itself* 30-DAY MONEY-BACK GUARANTEE*

A truly amazing desk set with a pen that automatically fills itself from a giant ink-fountain in the base. And it's so good, it is *guaranteed to please you!*

- ▶ Finger grip never touches ink. No chance for ink to touch you.
- ▶ Point instantly interchangeable and renewable.
- ▶ Fountain-base "ink-locked" against accidental spillage. Only the pen unlocks the ink. Writes full page or more without redipping.
- ▶ Fountain-base holds 40 times more ink than ordinary fountain pen. Won't leak. Won't flood. Easy to clean as a saucer.



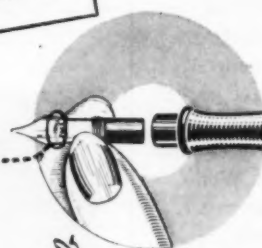
MODEL 444

*30-DAY MONEY BACK TRIAL OFFER

Your regular stationer will be glad to let you try one of these fine Self-Filling Desk Pens on your own desk for 30 days with the understanding you can return it for a full refund if you are not completely satisfied with it.

Choose

the right point for the way you write...by number.....



TO SELECT OR REPLACE
... HERE'S ALL YOU DO
MORE THAN 30 POINT STYLES

2668 *General writing* 2550 *Bookkeeping* 9314M *Medium stub* 2442 *Fine Stub* 9550 *Extra Fine* 9668 *General writing* 2284 *Signature Stub*

30 NUMBERED POINTS—FOR EVERY WRITING JOB

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92 Fleet Street, East, Toronto, Ontario

For More Information Circle No. 213 on Inquiry Card—Page 17

Pink Pearl

Just one out of
more than 3,000
EBERHARD FABER
products people
rely on!



Pink Pearl is only one of many reasons more people buy Eberhard Faber erasers than any others made. America's most famous pencil eraser—it's a soft, pliable pencil eraser of obvious quality. Now available in new paper-wrapped stick shape as well as in standard shape. Pink Pearl erases completely and cleans as it erases. Won't smudge or damage paper. The eraser for every office, school, studio and home desk.

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Since 1849

**EBERHARD
FABER** puts its quality
in writing

NEW YORK • TORONTO

For More Information Circle No. 214
on Inquiry Card—Page 17



A filing system which claims a 90% increase in capacity over conventional files is being produced by **DeLuxe Metal Furniture Co., Warren, Pa.**, a division of Royal Metal Manufacturing Co. Using vertical shelving with adjustable snap-in metal dividers on every shelf, the system eliminates tugging out file drawers, provides complete visibility and is claimed to give much faster record storage. Called the Verti-File, it is available in standard 3 feet wide cabinet sections with finished end panels and top.

Circle No. 99 on Inquiry Card—Page 17

International Business Machines Corp., New York, has promoted **T. V. Learson** to vice president in charge of sales. He had been director of electronic data processing equipment for IBM. Mr. Learson joined IBM in 1935 as a salesman. Also, it was announced that **L. H. LaMotte** and **A. L. Williams** have been elected executive vice presidents of the company. Both men are long time veterans of IBM and have seen service in several capacities.

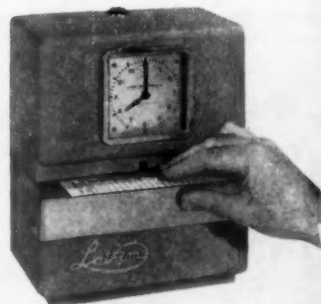
Metal Office Furniture Co., Grand Rapids, Mich., has changed its corporate name to **Steelcase, Inc.**



A compact, office-type cabinet contains all the equipment necessary for a new 40-line dial PBX telephone system of **Stromberg-Carlson Co., Rochester, N. Y.** With the new dial system, the entire switching and power unit is housed in a cabinet that looks like a standard office wardrobe or stationery cabinet. It is only 6'4" high, 4'1" wide, and 2' deep. For receiving

and routing calls, the attendant uses a key-type turret which resembles an adding machine. A handset telephone or an operator's headset can be used with the unit. The turret makes it possible to monitor central office calls, incoming or outgoing, without interfering with dialing or set connections. The system has a capacity of 40 local (internal) lines and 10 trunks (central office connectors).

Circle No. 100 on Inquiry Card—Page 17



A 1955 model time recorder, made by **Lathem Time Recorder Co., Atlanta, Ga.**, will time stamp any material, according to the manufacturer. A one-hand operation positioning gives accuracy while a slight pressure of the finger tips on the registering bar trips the printer. It will print on any material, from the flimsiest tissue to heavy card stock.

Circle No. 450 on Inquiry Card—Page 17

Heyer CONQUEROR
SPIRIT DUPLICATORS

**PRINT hundreds of FAST,
CLEAN PERFECT COPIES**

• IN MINUTES • IN 1 to 5 COLORS

Now, you can make 120 or more copies per minute of anything up to 9 x 14 inches in size — typed, written, drawn, traced or ruled — in 1 to 5 colors. All in one easy, inexpensive operation. The Heyer Conquerors, Manual and Electrically Operated, are the duplicators with ALL the features . . . priced much lower than comparable machines.

Model 70-Hand Operated—\$195 (plus tax)
Model 76-Automatic Electric—\$325 (plus tax)

Write today for FREE descriptive literature and name of your nearest dealer—to:

THE HEYER CORPORATION
1830 S. Kostner Ave., Chicago 23, Ill.
For More Information Circle No. 215
on Inquiry Card—Page 17

PURCHASING

D. B. Starrett has been named president of **Royal McBee International, New York**, a newly formed division of Royal McBee Corp. At the same time, he was made a vice president of the parent company.

Two highly translucent, pure rag content **photocopy papers** are being marketed by **Peerless Photo Products, Inc., Shoreham, L. I.** One is a lightweight, 55 gram stock, while the other is a transparentized tracing vellum.

Circle No. 451 on Inquiry Card—Page 17



Clary Multiplier Corp., San Gabriel, Calif., has announced a new 10-key electric adding machine which the manufacturer claims is adaptable for figuring accounting work from the manufacturing level to the retailing level. It will hold a constant factor for repeated multiplication in proportion, invoicing, discounting, commissions and other calculating and accounting problems. The machine weighs 20 lbs. and comes in two-tone greens and gray.

Circle No. 452 on Inquiry Card—Page 17

Additional information on these latest developments in the office equipment field can be obtained by using the reader service postcard on page 17. Just circle the corresponding numbers and complete information will be forwarded to you.

Webster makes ribbons for 225 office machines

Machines vary. So do operators. And job requirements vary, too. But two needs are constant — the need for clear legible work and the need for economical production.

Webster meets these needs with a wide variety of inked ribbons for specific machines and specific kinds of work. They are made from the finest materials, either silk, long staple cotton or nylon. And there is a wide choice available in color and ink intensity.

Naturally, these fine ribbons are unconditionally guaranteed. Webster introduced the first non-filling typewriter ribbon in 1889. Since then they've been precision made and carefully inspected, inch after inch, to insure uniformly good service.

The ribbon that does high quality work, dependably and economically, is the best ribbon for your office. Your wisest choice is Webster's . . . consult your nearest dealer or write to —

F. S. WEBSTER COMPANY

7 Amherst Street
Cambridge 42, Massachusetts

For More Information Circle No. 216 on Inquiry Card—Page 17

AMONG THE Associations



Central Iowa Association Honors Past Presidents

It was an active day for members of the Purchasing Agents Association of Iowa. First there was an afternoon tour of the Maytag Company's factory in Newton, Ia. Then there was a late afternoon forum on the vexing problem of handling small orders. Jim Casey presided. Other topics taken up at the forum included packaging, working with suppliers to reduce costs, and the importance of considering delivery and transportation cost.

The regular dinner meeting officially got under way at 7:45 when President Barcus extended a special welcome to the following past presidents: Keith Nichols, George Roupp, "Tee" Baldock, Jim Casey, Wally Hollingsworth, Jim Reis, and Don Foster. Don Foster then presented C. W. Clauser, retired director of purchases of the Maytag Co., with a life membership in the Association. Also specially honored was Past President Don Foster. He received a plaque in recognition for his services to the Association during the past year.

Guest speaker of the evening was
(Please turn to page 200)



Attending Past Presidents' Night of the Purchasing Agents Association of Central Iowa were 114 members and guests.

State Purchasing Officials Elect New Executive Committee



Newly elected members of the Executive Committee of the National Association of State Purchasing Officials are, left to right: Charles A. Byrley, Kentucky; Edgar C. Luby, New York, vice president; Eugene W. Hiatt, Kansas; Alice E. Miller, Texas; Franklyn A. Adams, Rhode Island; J. Stanley Bien, Michigan, president; and John W. Bush, Ohio, retiring president.

Common problems involved in the job of doing a better state purchasing job were discussed by members of the National Association of State Purchasing Officials at their annual meeting recently. Three major problems were discussed: public relations and state purchasing officials, standards and specifications, and preference to in-state bidders.

Public relations, while important to any purchasing office, is virtually imperative in a governmental purchasing office. The governmental purchaser works in a gold fish bowl—his business is everybody's

(Please turn to page 200)



At the speakers table for the Central Iowa meeting are, left to right: Tee Baldock, Don Foster, Jim Casey, George Roupp, Al Rempp, I. W. Herchenroeder, Frank Fisher, Bob Sampson, and Lee Howlett.

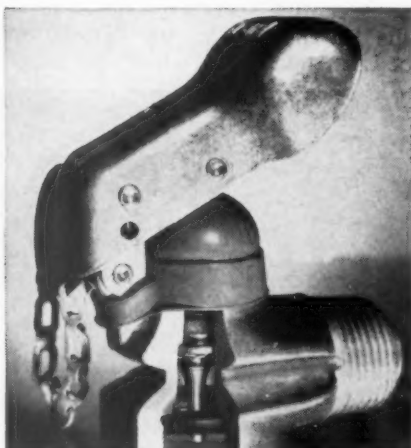
Here's why Ansul extinguishers give you faster, more dependable fire protection!



READY for instant action under the most severe exposure conditions.



WEATHER-TIGHT NOZZLES made of aluminum and stainless steel, can't rust. Neoprene cap and oil-impregnated washers keep out moisture.



PUNCTURE PIN. In this aluminum housing a stainless steel pin pierces the gas cylinder that supplies the propellant power for the dry chemical.



PATENTED NOZZLES. Straight or fan stream, the hazard determines which is installed. An Ansul exclusive for more effective fire control.



FIELD RECHARGING. Just 4 minutes after a fire is extinguished your Ansul unit can be recharged, ready for action. No special tools are needed.

The pictures on this page tell half a story. The complete story includes Ansul's facilities for training your personnel in the science of fire control and prevention. Experience has taught us that *complete* fire protection demands *both*—fast, dependable equipment and trained personnel to man that equipment. Ansul can provide both. Get in touch with your local Ansul man, he has the complete story about *complete* fire protection.

Write Ansul for your copy of *New Fire Equipment Catalog*.



ANSUL

Call the ANSUL MAN!

Get in touch with your local Ansul man through the "yellow pages," or write direct to **ANSUL CHEMICAL COMPANY**, Fire Equipment Division, Dept. F-81, Marinette, Wisconsin.



For Stampings ...look for the PLUS beyond the PRICE!



Ever think what it costs when the stampings you ordered keep falling below your specified AQL?

Steady unvarying conformance with AQL requirements, with minimum rejects — established over an excellent 39-year record — is just one of many plusses you get when you buy Detroit Stampings.

Look for the Plusses *beyond* the price the next time you buy stampings!

*And be sure to try **DETROIT***

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COMPANY**



408 Midland Ave., Detroit 3, Mich.

"America's Best-Known
Jobbing Stampings Manufacturer"

For More Information Circle No. 220
on Inquiry Card—Page 17

188

Milwaukee Ass'n Ladies' Night

Attendance of 271 was reported at the annual Ladies' Night dinner meeting of the Milwaukee Association of Purchasing Agents on December 14. Mr. William McNulty, director of the Y. M. C. A. mixed chorus, presented some very good choral numbers.

Guest speaker was Mr. Fay Le Meadows, pastor of the Shiloh Congregational Church in Dayton, O. The audience found his talk, "Walk Toward the Rainbow," interesting, sincere, and humorous.

The January meeting of the Milwaukee Association featured a very interesting speaker. Dr. Nicholas Nyaradi, former Minister of Finance of Hungary, described conditions in his native country which is now under Soviet domination.

1 1 1

Arthur Baker Retires from Los Angeles Association

After more than thirty years service, Arthur Baker has retired as executive secretary-treasurer of the Purchasing Agents Association of Los Angeles and editor and man-

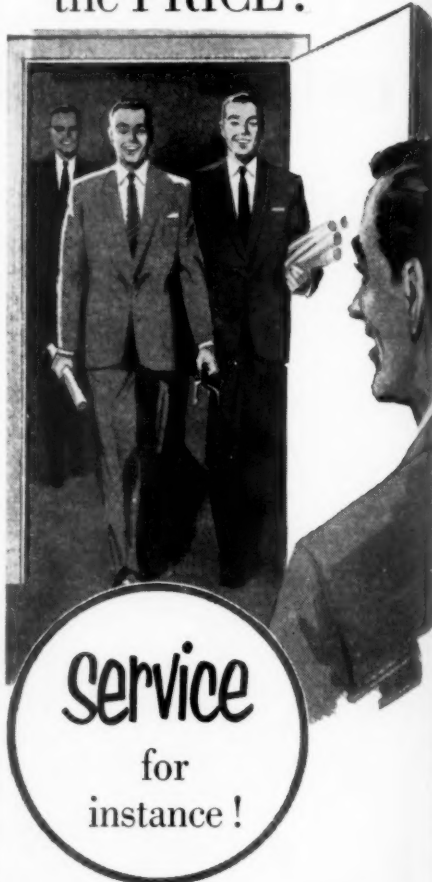


Raymond W. Brick, new executive secretary-treasurer of the Purchasing Agents Association of Los Angeles.

ager of the Southwestern Purchasing Agents' Magazine. His successor is Raymond W. Brick. Mr. Brick has had some 25 years experience in the purchasing field. His previous assignment was as PA for Solar Aircraft Co. in San Diego.

Some 1200 Los Angeles PAs and guests attended the Association's annual Hi-Jinks at the Los Angeles Elks Club. It was an evening of entertainment and good fellowship and much enjoyed by all.

For Stampings ...look for the PLUS beyond the PRICE!



Ever think how much time good quick service saves you and other key men in both office and plant?

Excellent service — proved every business day for 39 years — is another of the many plusses you get when you buy Detroit stampings.

Look for the Plusses *beyond* the price the next time you buy stampings!

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For More Information Circle No. 221
on Inquiry Card—Page 17

PURCHASING

HY-PRO SPECIALIZES TAP DESIGN



DESIGNS are made to suit your specific demands by Hy-Pro engineers, who specialize in taps.



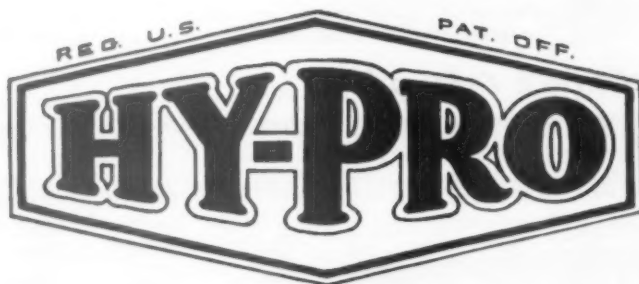
INDIVIDUAL BLUEPRINTS accompany every order followed in Hy-Pro's production line. The quality of your Hy-Pro taps is insured by this one of many specialized procedures.

...to save costs in your production

Tap design is specialized at Hy-Pro. In fact, their whole operation is concentrated on the development and production of this one important line. Toward this end, Hy-Pro's design engineers are able to center their attention on the most efficient and economical taps for the jobs you need.

Over 5000 blueprints are handled every week . . . another indication of Hy-Pro's recognition in this field as "*The Tap Specialists*".

Whatever your own tap needs may be, let Hy-Pro help you boost production. Contact your local distributor or call Hy-Pro direct. They offer you a full line of quality taps, plus the experience of specialized design engineers.



HY-PRO TOOL CO., NEW BEDFORD, MASS., U. S. A.

DISTRIBUTORS IN ALL LEADING CITIES

ADDITIONAL WAREHOUSES: 6046 College Ave.
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109 Edison Pl.
NEWARK 5, N. J. Market 2-4318

For More Information Circle No. 222 on Inquiry Card—Page 17

FEBRUARY, 1955

189

Can Tubing Be Used In **YOUR PRODUCT?**



ROUND

1/4" to 4" O.D. 7 to 22 gauge

SQUARE	Gauge	RECTANGULAR
to 3/4"	16 thru 22	
to 1"	11 thru 22	3/8" minimum
to 2"	11 thru 20	side to 5"
to 3"	11 thru 18	maximum side

Carbon 1010 to 1025

Have YOU considered why tubing, because of its great adaptability and ease of fabrication, results in added economy in the manufacture of many hundreds of different products? Can it be used in YOURS?

Remember that these advantages of low cost manufacture, adaptability and dependability are yours when you use MICHIGAN Electric Resistance WELDED STEEL TUBING:

- 1 It is fabricated in round, square and rectangular shapes, in a wide range of sizes;
- 2 It is always of uniform strength, weight, ductility and weldability;
- 3 It can be flanged, expanded, tapered, swaged, beaded, upset, flattened, forged, spun closed, fluted and rolled.
- 4 It can be formed or machined in your plant or prefabricated at Michigan.

Let's talk tubing! Our engineers will be pleased to help you determine how Michigan tubing can be used to best advantage in the manufacture of your product.



Nearly 40 Years in the Business
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FACTORIES: DETROIT, MICHIGAN • SHELBY, OHIO

DISTRIBUTORS: Steel Sales Corp., Chicago, St. Louis, Milwaukee, Indianapolis and Minneapolis—Miller Steel Co., Inc., Hillside, N. J.—C. L. Hyland Co., Dayton, Ohio—Service Steel Co., Los Angeles, Calif.—Strong, Carlisle & Hammond Co., Cleveland, Ohio—Globe Supply Co., Denver, Colorado—W. A. McMichaels Co., Upper Darby, Pa.—Harry E. Clark & Co., Houston, Texas—C. I. Crais Co., Birmingham, Ala.

N. Y. PAs Hear Noted Economist

Guest speaker at the January meeting of the Purchasing Agents Association of New York was Martin R. Gainsbrugh, chief economist, National Industrial Conference Board. Mr. Gainsbrugh's topic was the "Business Outlook for 1955." He predicted moderate increases in industrial production this year and a slight increase in gross national product. Continued stability in prices also seems probable. Although unemployment may still be a problem, greater output will provide more jobs.

Ed Krech's program committee did another outstanding job in lining up a top speaker for the forum which precedes the regular dinner meeting. He was Thomas M. Logan, engineering and cost analysis manager, purchasing department, Caterpillar Tractor Co. Mr. Logan discussed a topic dear to every PAs heart, "Cutting Costs." He described how with value analysis techniques, purchasing can make a real contribution to reducing costs.

Members of the New York Association are now looking forward to the Annual Purchasing-Sales Executives Dinner on Tuesday, February 15, at the Hotel Commodore. There is every indication that this If past meetings are a criterion, will be a heavily attended and highly successful event.

1 1 1

Columbus Association

Guest speaker at the December meeting of the Columbus Association of Purchasing Agents was Mr. Everett D. Reese. Mr. Reese is former president of the Ohio and American Bankers' Associations and is president of the Park National Bank in Newark, Ohio. He was, therefore, well qualified for his topic, "The Business Outlook for 1955" and gave PAs valuable help on what to expect in employment, production, and prices this year.

1 1 1

Purchasers Assistants Party

No guest speaker and no business were the orders of the evening at the annual Christmas Party of the Metropolitan Purchasers' Assistants Club. Instead there was a buffet dinner tempting enough to induce three or four trips through the chow line. In addition there was a drawing for prizes. The evening wound up with a songfest to the music of an accordion.

For More Information Circle No. 223
←on Inquiry Card—Page 17

More than meets the eye

P-K Socket Screws, at a glance, may look substantially like those you buy from "habit." You have to "look beyond the hex" for the difference.

If you don't, you are buying with a "blind spot" that can block your way to *proved* benefits other buyers are using to advantage. Parker-Kalon's exacting Quality Control is only one of the advantages you don't see until you "look beyond the hex."

Look Beyond the Hex

Compare every detail of product and service. Compare for advanced design . . . for proved assembly strength . . . for buying aids, and supply service. Get all the facts, and try P-K Socket Screws. You'll find they take top rating in any test.

Get samples, information from your P-K Distributor, or write: Parker-Kalon Division, General American Transportation Corporation, 200 Varick Street, New York 14, N. Y.



Two of the many steps in the exacting P-K Quality Control routine are illustrated. Left, the metallograph test to check metal structure, and right, the Magnaflux inspection, employing "black light" to reveal any defects.

→ **FOR TOP QUALITY** and tolerance gaged to your most exacting specifications — and guaranteed.



→ **FOR ADVANCED DESIGN** that speeds assemblies — makes them simpler, stronger — and saves errors.

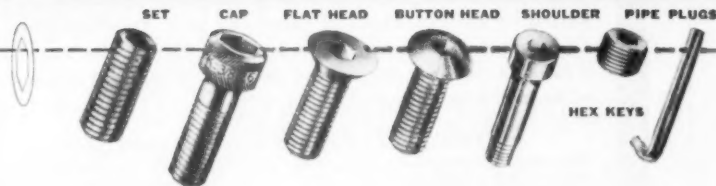
→ **FOR ASSEMBLY STRENGTH** okayed in a million punishing tests by thousands of satisfied users.

→ **FOR PLANNING AIDS** and buying data patterned to your special needs, plus advice on assembly.

→ **FOR SUPPLY SERVICE** set up for fast action and lower purchasing expense — by local Distributors.

→ **FOR ANY STYLE OR SIZE** You'll find any Socket Screw you need in P-K's complete line. Hex Keys in all sizes, and several handy sets.

PARKER-KALON SOCKET SCREWS



→ GET ALL THESE ESSENTIALS OF COST-WISE ASSEMBLY GET **P-K**

In Stock . . . see your nearby P-K Distributor . . . your local Supply and Service Specialist

For More Information Circle No. 226 on Inquiry Card—Page 17

NEW *Mall*

"SQUATTY"

Pneumatic Impact Wrench

**MAKES QUICK
WORK OF
TOUGH NUTS**



\$295⁰⁰



Tough, frozen, and stripped nuts yell, "UNCLE" when "Squatty" goes to work. It's designed to handle hard-to-get-at jobs . . . loosens the toughest nuts and bolts. Its flat back enables operator to place his chest or shoulder behind the wrench. Capacity $\frac{7}{8}$ " $8\frac{1}{2}$ " high, spindle offset $2\frac{1}{8}$ ".



The MALL MAN in your area will give you an on-the-job demonstration of "Squatty" . . . no obligation. Phone or write the MALL Service Warehouse nearest you.

MALL TOOL CO. PORTABLE POWER TOOLS
Gasoline—Electric—Air

7791 S. Chicago Ave., Chicago 19, Illinois

Send me all the facts about the MALL "Squatty".

Name _____

Company _____

Address _____

MU-153

For More Information Circle No. 227
on Inquiry Card—Page 17

Lehigh Valley Ass'n Holds Dinner Dance



Highly successful was the 35th Annual Dinner Dance of the Purchasing Agents Association of the Lehigh Valley. Approximately 350 members and guests attended. Enjoying an intermission are, left to right: L. R. Albright Jr., president of the Association; Mrs. Mutchler; Ralph W. Mutchler, dance chairman and vice president of the Association; and Mrs. Albright.

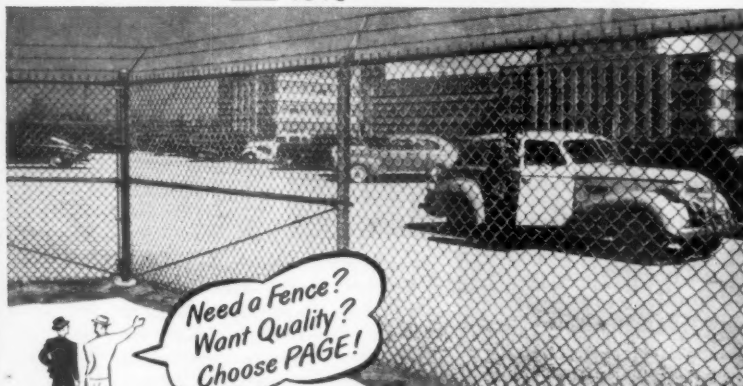
N. Calif. Federal Buyers

Special feature of the December meeting of the Federal Procurement Officers Association of Northern California was "It's a Mystery to Me," presented by Commander V. J. Harris Jr. Commander Har-

ris is an experienced magician and has made numerous appearances as Sir James. His performance was enjoyed greatly by all. In addition, the subject of "Ethics in Purchasing" was discussed by Harold R. Morrison, district purchasing agent, Union Oil Co.

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America's First Wire Fence—since 1883



• You need a fence if your property lacks protection against common hazards. And you certainly want time-tested quality in the safeguard you provide. Whether you choose heavily galvanized Copper-Bearing Steel, corrosion-resisting Aluminum, or long-lasting Stainless Steel, PAGE Fence is quality controlled from raw metal to rugged fence erected on metal posts deep-set in concrete. Available are 8 basic styles, varied by heights, types of gates, top rails, and barbed wire strands for added security. Finally, your PAGE Fence will be expertly erected by a reliable, technically trained firm. For important fence data and name of nearest PAGE firm—

Write to PAGE FENCE ASSOCIATION, Monessen, Pa., or look in Thomas' Register for listing of Page Chain Link Fence Distributors under "PAGE STEEL AND WIRE DIVISION," or see MacRae's Blue Book for listing under "FENCING, WIRE, LINK," or consult Sweet's Industrial Construction File.

PRODUCT OF PAGE STEEL & WIRE DIVISION OF AMERICAN CHAIN & CABLE COMPANY, INC.

For More Information Circle No. 228 on Inquiry Card—Page 17

WATSON-STILLMAN

FORGED STEEL UNIONS



Designed and Manufactured to:

- **AAR SPECIFICATIONS**
- **ASTM A-105 GRADE 2**

We're happy to announce the arrival of these fine additions to our Forged Steel Fittings Family. Designed by Watson-Stillman engineers and manufactured on our new high precision machinery, these unions give you the utmost in serviceability in high pressure piping systems.

These outstanding features are just what you've been looking for:

1. All parts are drop-forged of high quality steel for maximum strength and toughness to resist shock and vibration.
2. Heavy, octagonal-shaped walls give you added protection at high pressures.
3. Steel-to-steel seat with ball-to-angle mating surfaces insures a tight, leakproof seal.
4. Nuts are plated with a heavy coat of cadmium to resist galling and seizing.

Watson-Stillman Unions are available in both Screw-End and Socket-Welding Types in sizes $\frac{1}{8}$ " to 2". For complete technical information write today for our new Union Bulletin.

Sold Through Leading Distributors

Send today
for Bulletin U-1



WATSON-STILLMAN FITTINGS DIVISION

H.K.P. H. K. PORTER COMPANY, INC.
Roselle, New Jersey

8

For More Information Circle No. 229 on Inquiry Card—Page 17

FEBRUARY, 1955

195



The responsibility of being a leader

The United States Gasket Company is the recognized leader in the fabrication and application of the "wonder plastics", duPont TEFLON and Kellogg's KEL-F—leadership earned through many years of pioneering.

The responsibility of this leadership is acutely recognized by the progressive management of this company and is apparent in its three essential activities.

1. Continued engineering research

Three highly specialized engineering laboratories are maintained—chemical, electronic and physical—engineering which continues to produce most of the advanced ideas and practices in the application of these plastics to commercial, A.E.C., and military requirements.

2. Quality controlled production

The most modern facilities for rapid, low cost quality production—many machines and equipment designed by our own engineering department.

3. Engineering Sales Service, everywhere

Representatives of the United States Gasket Company are located in all principal cities here and abroad. These men are factory-trained and are ready to translate your problems into satisfactory solutions with U.S.G. products—either at the moment, or drawing upon the wealth of specialized knowledge of the home office.

Write for twenty page Brochure "Inside U.S.G."

UNITED STATES GASKET COMPANY PRODUCTS INCLUDE—Chemically impervious gaskets, packing and expansion joints • High voltage, high frequency, high temperature insulating materials • TEFLON alloys • No-lubricant, non-contaminating bearings and bushings • Chemical-proof pump impellers and parts • Electronic components and electro-mechanical assemblies • Cementable TEFLON • Solderable TEFLON • Perforated TEFLON and KEL-F discs and Raschig rings for chemical towers • TEFLON-faced guide rails, work surfaces, hoppers • TEFLON pipe liners • Chemical resistant mechanical seals, etc.



For More Information Circle No. 230 on Inquiry Card—Page 17

Carolinas-Virginia Ass'n Holds Winter Meeting

The Carolina Hotel in Pinehurst, N. C. was the scene of the two-day winter meeting of the Carolinas-Virginia Purchasing Agents Association. Following a business meeting on the first day of the meeting, H. R. Michel of Celanese Corp. of America presided over an educational program. S. A. Belcher Jr., M. Lowenstein & Sons Inc., discussed "Profits from Purchasing," George E. Ziegler Jr., Kendall Mills, gave some tips on "How to Promote Better Relations With Other Departments." "Public Relations" was the topic of Francis O. Price of Dillard Paper Co. The first day of the conference ended with a social hour and a banquet.

The second day opened with a talk by Alfred J. Dickinson, vice president, Virginia-Carolina Chemical Co. on "Your Key Responsibility as Purchasing Agents." "What Purchasing Expects from Management" was the subject of the closed forum that followed. Frank E. Whyte, N.A.P.A. vice president, discussed "Purchasing Relations With Other Departments."

Members are already looking forward to the Association's spring meeting which will be held March 18-19 at the Francis Marion Hotel in Charleston, S. C.

1 1 1

New Orleans Association

The January meeting of the Purchasing Agents Association of New Orleans featured an interesting and different program. On hand was Mr. C. J. O'Connor, president of Reichhold Chemicals Inc. He described his recent travels in Formosa, Egypt, and Palestine and illustrated his talk with colored movies taken in these faraway places.

In addition, PAs heard a talk by Mr. Robert Elsasser on the current economic situation. This is a regular feature of New Orleans Association meetings.

1 1 1

Syracuse Xmas Party

The Thirtieth Annual Christmas Party of the Purchasing Agents Association of Syracuse and Central New York was biggest and best yet. On hand, in person, was Roy Rogers with singing stars and dancers of radio and television. Music was provided by Jack Ianotta's orchestra.

For More Information Circle No. 231 on Inquiry Card—Page 17→

NEW STYLE 46-D



For accurate reconditioning of all types of single-point boring, turning and facing tools; also dovetail and straight shank form tools. This grinder has a new in-built motor spindle designed for maximum rigidity. Wheels are mounted on the spindle shaft. Ball bearings are lifetime lubricated. Tool rest tables are at a comfortable height for operator convenience.



NEW STYLE 49-A

A heavy-duty grinder that takes carbide, cast alloy and high-speed steel tools, medium and large size.

This new grinder has a new coolant system; is easier to clean and stays clean longer; troughs and coolant return lines are bigger, more accessible, and a settling tank is added.

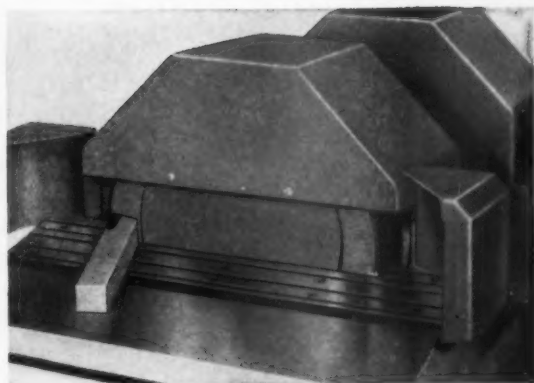
There's an Ex-Cell-O Grinder to suit the needs of every shop, large or small. For new low prices on the above models, and for data on Ex-Cell-O's complete tool grinder line, write to Detroit, or call your local Ex-Cell-O Representative.



55-2

NEW EX-CELL-O CARBIDE TOOL GRINDERS

STYLES 46-D AND 49-A



LARGE TOOL REST TABLES

Illustrated is the tool rest table on the Style 49-A. It supports the biggest tools firmly. Adjustment is quick and easy to the required angular setting, and to compensate for wheel wear.

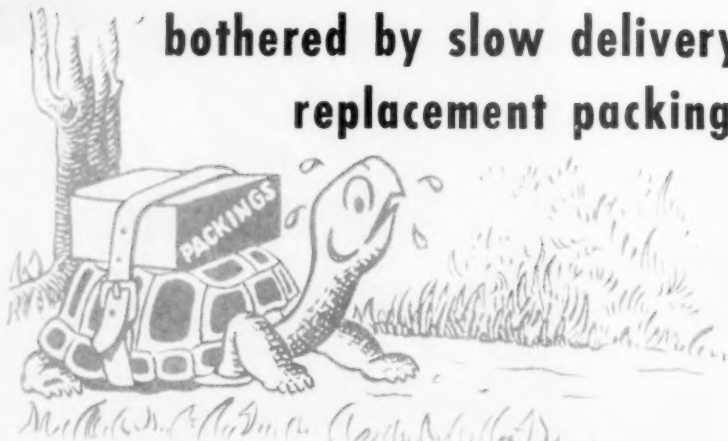
Wheel spindle is permanently lubricated.

EX-CELL-O CORPORATION

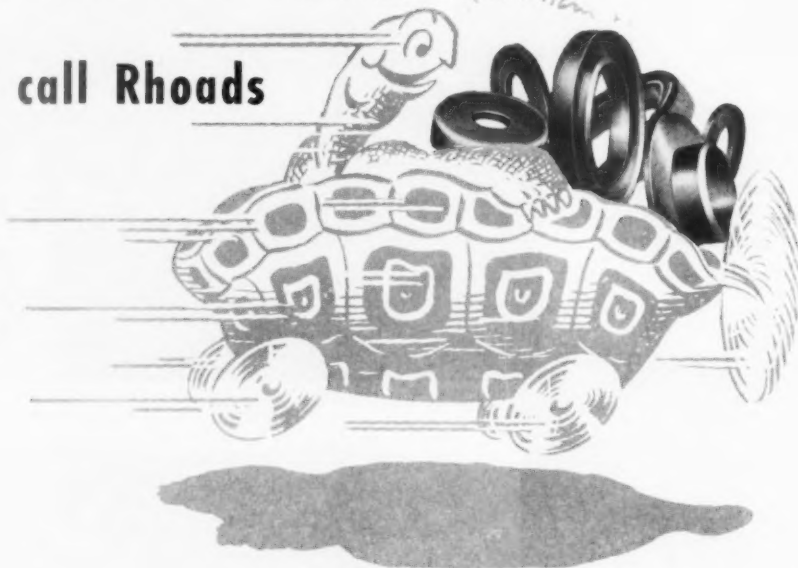
DETROIT 32, MICHIGAN

MANUFACTURERS OF PRECISION MACHINE TOOLS •
GRINDING SPINDLES • CUTTING TOOLS • RAILROAD PINS
AND BUSHINGS • DRILL JIG BUSHINGS • AIRCRAFT AND
MISCELLANEOUS PRODUCTION PARTS • DAIRY EQUIPMENT

bothered by slow delivery on replacement packings



call Rhoads



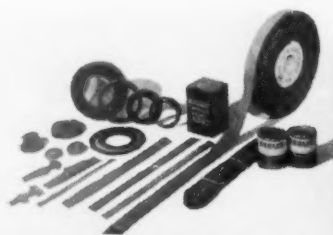
If your production is hampered and you're tearing your hair out because of slow delivery on replacement packings for hydraulic and pneumatic applications, pick up the phone and let us know the type, service, pressure, temperature, dimensions and quantity you want. We will make every effort to give you prompt delivery to get you back into production . . . along with well-known Rhoads quality.

Or perhaps you just want a quotation for use in the near future. Call us. There's no obligation. Direct factory representatives are ready to serve you, or call one of the following branch offices:

Philadelphia, Call LOmbard 3-7441

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PHILADELPHIA • NEW YORK • CHICAGO • ATLANTA

For More Information Circle No. 234 on Inquiry Card—Page 17

(Continued from page 184)

Mr. L. W. Herchenroeder from the East Pittsburgh works of Westinghouse Electric. His topic was "Automation." According to Mr. Herchenroeder, automation will create the second Industrial Revolution and be a boon to society not a job-destroying Frankenstein as some alarmists predict. Inventory records, and other jobs involving prep-



National Director Don Foster presents C. W. Clauser, retiring director of purchases of the Maytag Co., with a life membership in the Central Iowa Association.

aration of data will soon be automated. For effective use of automation in mass production, the product must be designed to suit the process, he pointed out. One of the major problems in automatic machines today are controls, which are sometimes larger and more complicated than the machines.

1 1 1

(Continued from page 184)

business. In addition to maintaining good relations with his suppliers and the agencies he serves, he must be constantly aware that he is serving the public and its representatives in the legislative and executive branches of the government.

Standards and specifications are critically important in governmental purchasing where the award must ordinarily be made to the lowest bidder who can meet them. To better cope with this problem, the Association now has a committee working on development of uniform standards and a plan to eliminate the duplication of effort that has occurred in the past.

There is a belief by many that state bidders should be given preference over out-of-state bidders in selling to the state. It is general policy to favor the local bidder only when all other factors—quality, service, price, delivery, etc.—are equal. In some states PAs are

(Please turn to page 202)

For More Information Circle No. 235
on Inquiry Card—Page 17→
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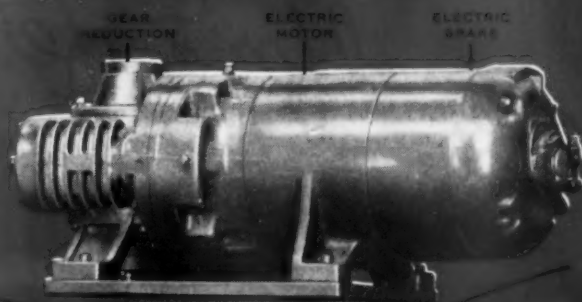
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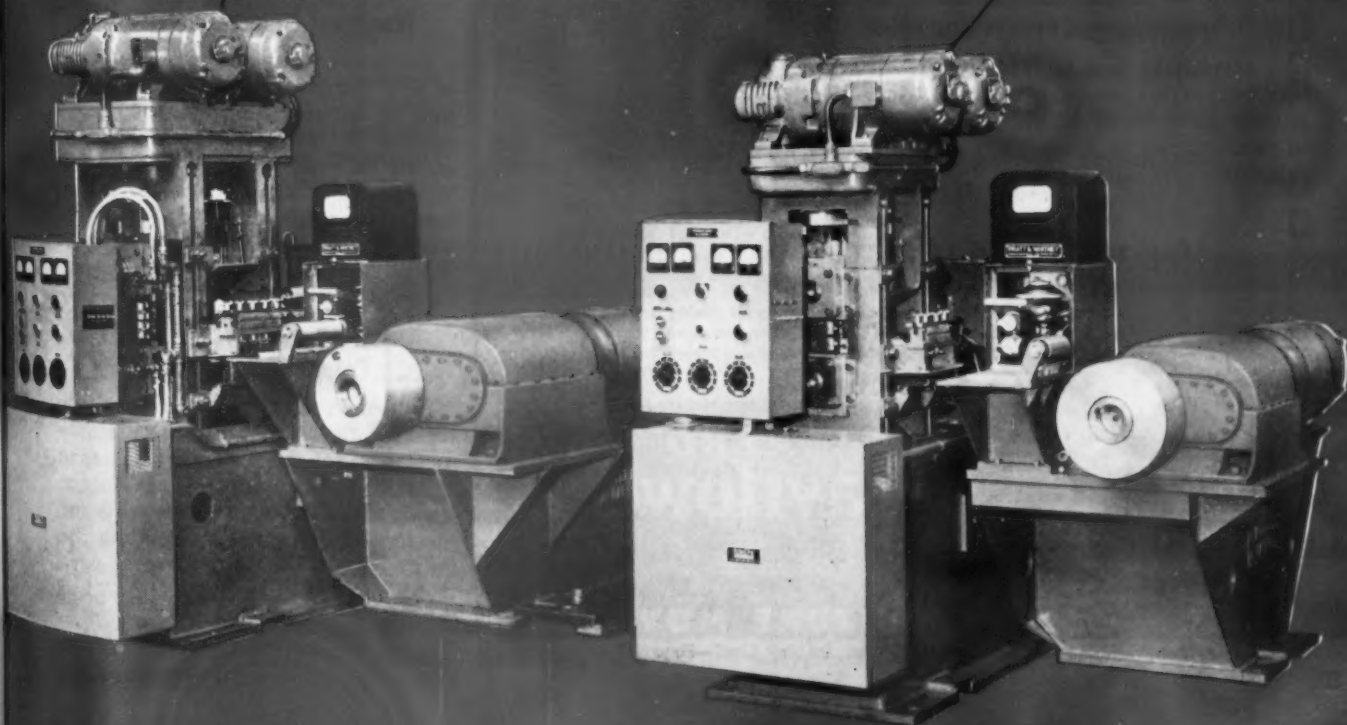


See how easily the standard electric motor, standard gear reduction, standard electric brake combine into a drive that gives the RIGHT horsepower, the RIGHT shaft speed, the RIGHT features . . . all in one compact unit. Nowhere else will you find power units that are so flexible, so easily adaptable, and in such a wide range of types and ratings.

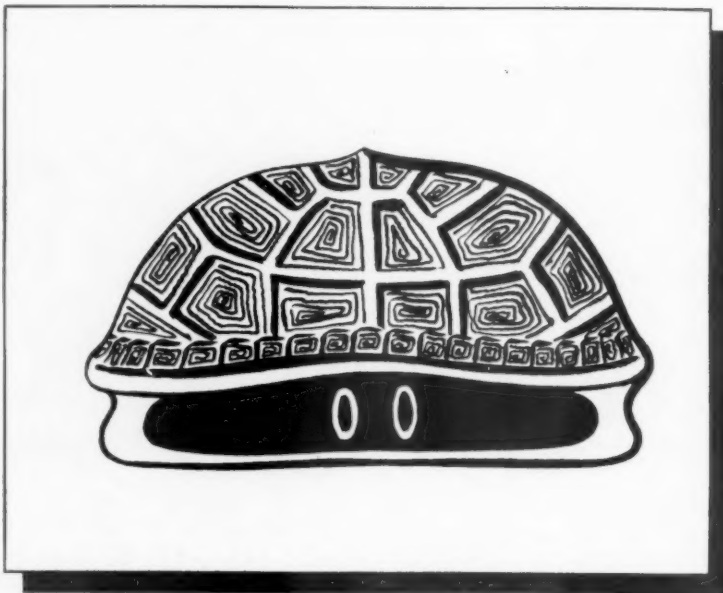
Master power drives are available in thousands and thousands of ratings ($\frac{1}{8}$ to 400 HP) . . . in open, enclosed, splash proof, fan cooled, explosion proof . . . horizontal or vertical . . . for all phases, voltages and frequencies . . . in single speed, multi-speed and variable speed types . . . with or without flanges or other special features . . . with 5 types of gear reduction up to 430 to 1 ratio . . . with electric brakes . . . with fluid-drive . . . with mechanical or electronic variable speed units . . . and for every type of mounting . . . Master has them all and so can be completely impartial in helping you select the one best power drive for you.

**standard units
easily combine into
special purpose drives**

THE MASTER ELECTRIC COMPANY • DAYTON 1, OHIO



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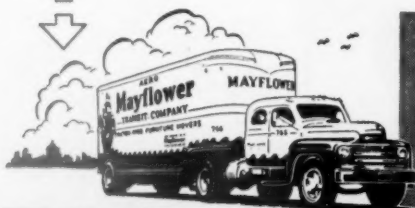


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AERO Mayflower
America's Finest

NATION-WIDE FURNITURE MOVERS

For More Information Circle No. 236 on Inquiry Card—Page 17

(Continued from page 200)

handicapped by more restrictive rules of preference for in-state purchases. The majority of Association members agreed that public funds should not be used to support individual state bidders by paying them higher prices. It was felt that this practice benefits a small segment of the population at the expense of the majority.

♦ ♦ ♦

Dayton PAs Journey to Joint Meeting in Cincinnati

Members of the Purchasing Agents Association of Dayton journeyed by bus for a joint meeting with the Cincinnati Association on January 11. Addressing the combined group was N. A. P. A. President Howard Ahl. The meeting was a huge success and gave PAs from the two cities a chance to renew old friendships.

Next on the calendar for the Dayton group is Past Presidents Night on February 10. Featured speaker will be Andrew M. Kennedy Jr. of the Westinghouse Electric Corp. Mr. Kennedy heads up the N. A. P. A. committee on steel and should have some interesting views on this important commodity.

Membership in the Dayton Association now totals 148 and it looks like there are good prospects for further growth. Newly elected members include: O. J. Burnett, Ohio Soldiers and Sailors Orphan Home; Lloyd K. Garber, Anchor Rubber Co.; Walter A. Hall, U. S. Air Force; and William R. Johnson, Gardner Board & Carton Co.

♦ ♦ ♦

Montreal Salesmens' Night

Salesmen were guests of members of the Purchasing Agents Association of Montreal on Tuesday, December 21. Some 700 members and guests enjoyed a talk by Mr. A. C. Wilkinson. Mr. Wilkinson is an honorary president of the Advertising and Sales Executives Club of Montreal. His subject was "Some Favorites."

♦ ♦ ♦

Toledo Xmas Party

Saturday, December 18, was the night of the Annual Ladies Christmas Party of the Toledo Purchasing Agents Association at the Toledo Yacht Club. In addition to gifts for the ladies, there was dancing to the music of Warney Ruhl's orchestra featuring Vina at the piano and Celeste.

A AVAILABILITY
S SERVICE
Q QUALITY

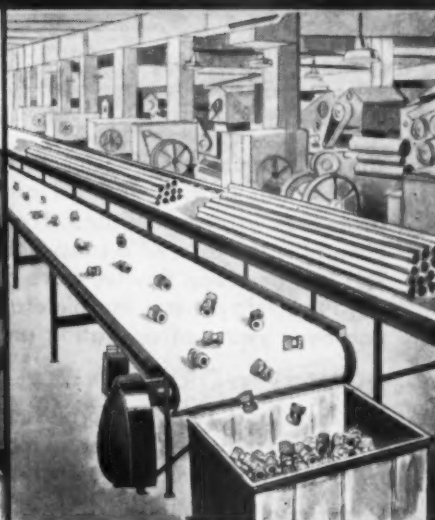
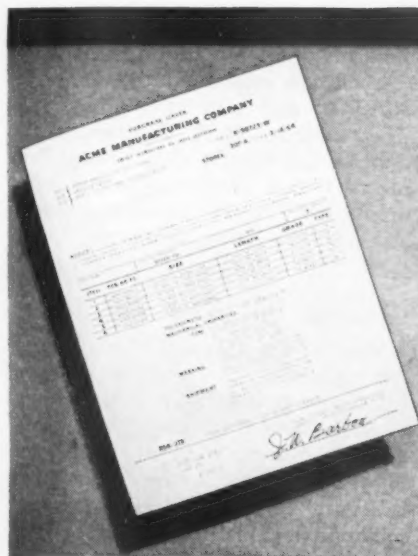
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B & W

CARBON STEEL

SEAMLESS

MECHANICAL TUBING

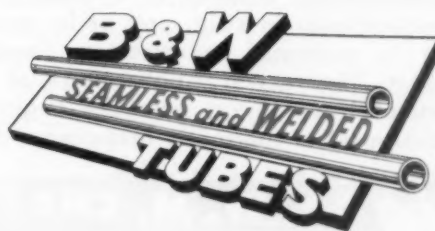


A **AVAILABILITY**
 Buying convenience through a single source of hot-finished and cold-finished carbon steel tubing, produced in a wide range of grades and sizes.

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 You can save through the dependable assistance of B&W Regional Representatives and qualified distributors, trained to help solve fabrication problems and to assist in tube selection.

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remember **A**
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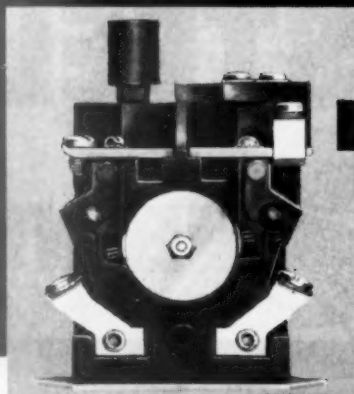


THE BABCOCK & WILCOX COMPANY
TUBULAR PRODUCTS DIVISION
 Beaver Falls, Pa.—Seamless Tubing; Welded Stainless Steel Tubing
 Alliance, Ohio—Welded Carbon Steel Tubing

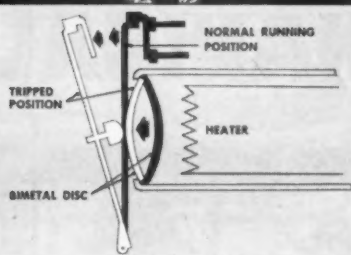
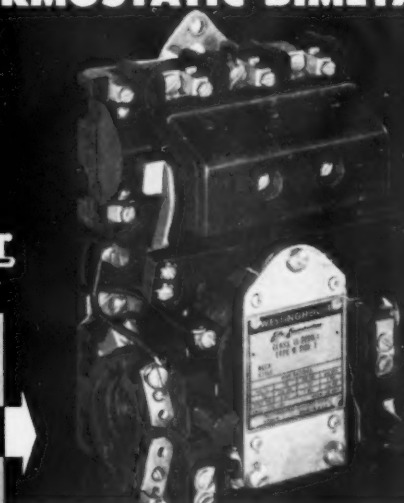
HOW CHACE THERMOSTATIC BIMETAL ACTUATES THE



Life-Linestarter OVERLOAD RELAY



Product of
Westinghouse Electric Corp.,
Beaver, Pennsylvania



The Westinghouse Life-Linestarter provides positive protection against dangerous overload and motor burnout. This overload protection is accomplished by means of Chace Thermostatic Bimetal in the form of a snap-action, disc type of overload relay. This is a precision device, more reliable than conventional solder pot type relays since the bimetal disc retains its precise calibration over years of operation and is not affected by oxidation.

HOW IT WORKS

The overload relay is furnished set for hand reset operation. The relay may be set for automatic reset, hand reset or hand reset with no manual means of opening the contacts.

Under overload, the temperature of the heater element adjacent to the Chace Thermostatic Bimetal disc increases. When the temperature rise attains a predetermined level, it causes the bimetal disc to deflect from a normally concave to a convex position. The impact of the disc against the moving contact arm forces the contacts to open and break the coil circuit, opening the starter contacts and stopping the motor. When the bimetal disc cools, it snaps back to its normally concave position. After the cause of the overload has been eliminated, the relay is easily reset and the motor again started. The bimetal disc cannot be damaged by attempted reset at any time during its cooling period.

Chace Thermostatic Bimetal is available in 29 different alloy combinations, in strip, coil or in complete elements, fabricated to customer specification. Send for our new, free booklet, "Successful Applications of Chace Thermostatic Bimetal," containing valuable engineering information for designers of thermally responsive devices.



W. M. CHACE CO.
Thermostatic Bimetal
1635 BEARD AVE., DETROIT 9, MICH.

For More Information Circle No. 240 on Inquiry Card—Page 17

Springfield, Mo. Ass'n Being Organized

The groundwork for a Springfield, Missouri chapter of the National Association of Purchasing Agents is now being laid. Some 60 Springfield PAs have already expressed interest in the idea of forming a local association with the goal of eventually affiliating with N.A.P.A. Until the Springfield chapter got approved, members could get the benefits of N.A.P.A. membership by belonging to the Kansas City Association.

Sparkplug for the new group is Fred Begg of the Lily-Tulip Cup Corp. Temporary committees appointed to get the new group organized include: membership—Nile James, Lee Schweitzer, Wes Brazeal, and C. M. Griffith; meeting plans—Harry Hoffman, Chester Schneider, and Jack Garvey; and miscellaneous work—Earl Foster, Bill Martin, Bill Kaltenbach, and Bob Kramer.

At the initial organization meeting, members of the Kansas City Association explained the value of N.A.P.A. and how it is organized. They included R. A. Hennier, president of the Kansas City group; Bill Metzger and Wayne Webster, vice presidents; Harry Aker, secretary; and Bob Fletcher, treasurer.

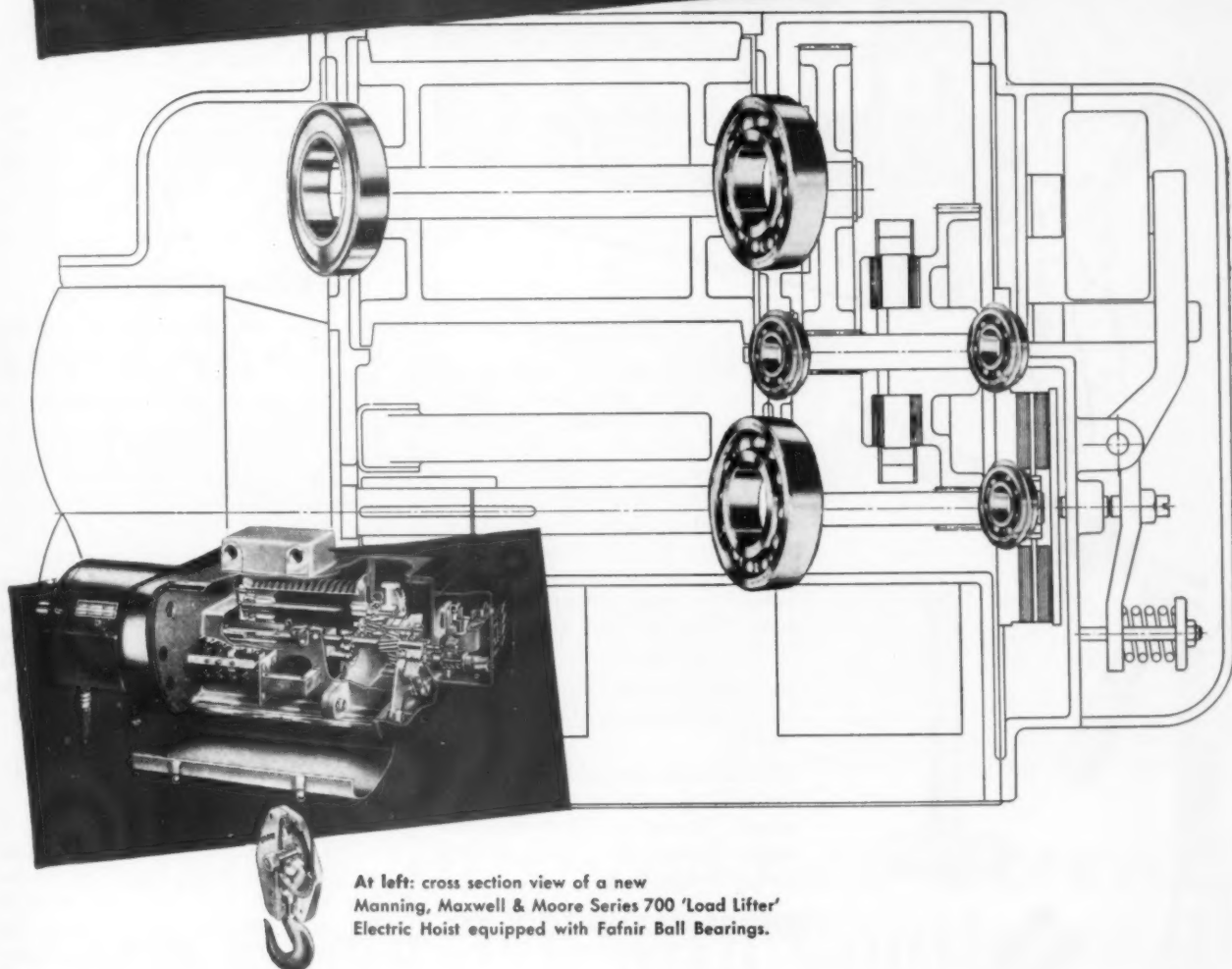
Chicago PAs Hear FBI Agent

Members of the Purchasing Agents Association of Chicago were treated to a unique and interesting experience at their December meeting which was held at the Hotel Sherman. Varying somewhat from the usual line of programs, the Association had as guest speaker, Mr. W. G. Banister, special agent in charge of the Federal Bureau of Investigation in Chicago. Mr. Banister's topic was "The Responsibilities of Citizens Today."

New England Xmas Party

Purchasing problems were forgotten—temporarily at least—on Monday, December 13 at the Hotel Bradford Ballroom in Boston. The New England Purchasing Agents Association held its annual Christmas Party. A roast beef dinner, gifts, and entertainment were substituted for requisitions and purchase orders. Members agreed that the Christmas Meeting Committee consisting of Bill Cone, Dan Donovan, Charlie Hughes, Russ Mahan, Al Richards, Dan Serra, Al Taylor, and John Corcoran did a fine job on arrangements.

How an "Industrial Muscle" is kept from getting "Muscle-bound"



At left: cross section view of a new Manning, Maxwell & Moore Series 700 'Load Lifter' Electric Hoist equipped with Fafnir Ball Bearings.

Every bearing indicated in the diagram above highlights the strategy of Manning, Maxwell & Moore's electric hoist designers. Each eliminates a possible source of trouble caused by friction...on rope drum (bearing lubricated for life) on trolley assembly, on gear shafts, etc.

With critical turning points protected, this heavy-duty 1-ton capacity hoist is offered for three-shift lifting *every day in the year*. It lifts a ton, thirty feet a minute. Power is concentrated on lifting, not shared to overcome friction. It's smooth, steady, and efficient. Lubrication becomes a minor detail.

Fafnir is a supplier of Ball Bearings for Manning, Maxwell & Moore hoists and for hundreds of other industrial machines where Ball Bearing advantages improve performance and prolong service-life. The choice of Fafnir Ball Bearings, in case after case, has been influenced by the Fafnir "attitude and aptitude" . . . a way of looking at bearing problems from the designer's viewpoint, an aptitude for supplying the right ball bearing to fit the need. Maybe these attributes can help you solve a bearing problem. The Fafnir Bearing Company, New Britain, Connecticut.

FAFNIR

BALL BEARINGS

MOST COMPLETE



LINE IN AMERICA



RITCO Forgings, in steel or non-ferrous metals, are clean, bright, accurate, and strong. Made in weights from ¼ lb. to 15 lbs., they have maximum strength for their weight. Parts are smooth, free of flash, and conform to your blueprints. Use RITCO Drop Forgings: They're the economical, right answer to your design problems. Send blueprints and specifications for free estimates.

We offer complete machining and grinding facilities for finishing forgings.

We also make special fasteners and finished bolts with regular or heavy heads. Exclusive New England representatives for Cleveland Cap Screw Company.

RHODE ISLAND TOOL CO.

Since 1834

148 West River Street
Providence 1, R. I.



Buffalo Ass'n Meets

At the December meeting of the Purchasing Agents Association of Buffalo, some \$130 was collected from members and a like amount donated from Association funds. The sum was given to the Buffalo Evening News Crippled Childrens Camp Fund and the Courier Express Good Fellows Membership Fund. Except for voting on new membership applications, the regular order of business was dispensed with for the drawing of gifts.

New members of the Buffalo group include: C. A. Roberts, Siegfried Construction Co.; Richard W. Creamer, O-Cel-O Division of General Mills; Charles W. Rider, Bennett Manufacturing Co.; and William J. Trapp, General Mills.

1 1 1

Montreal Association

It was "Aviation Night" for the Purchasing Agents Association of Montreal. Guest speaker was W. Gordon Wood, vice president for traffic, Trans-Canada Airlines. His topic was "Air Traffic." On hand to answer questions were two other experts from TCA, J. G. Maxwell, regional traffic manager and F. R. Laflamme, cargo sales manager.

Prior to the dinner meeting, there was a panel discussion on "Purchasing Policy." Cy Butler got the discussion rolling with a short talk and members freely expressed their ideas from the floor.

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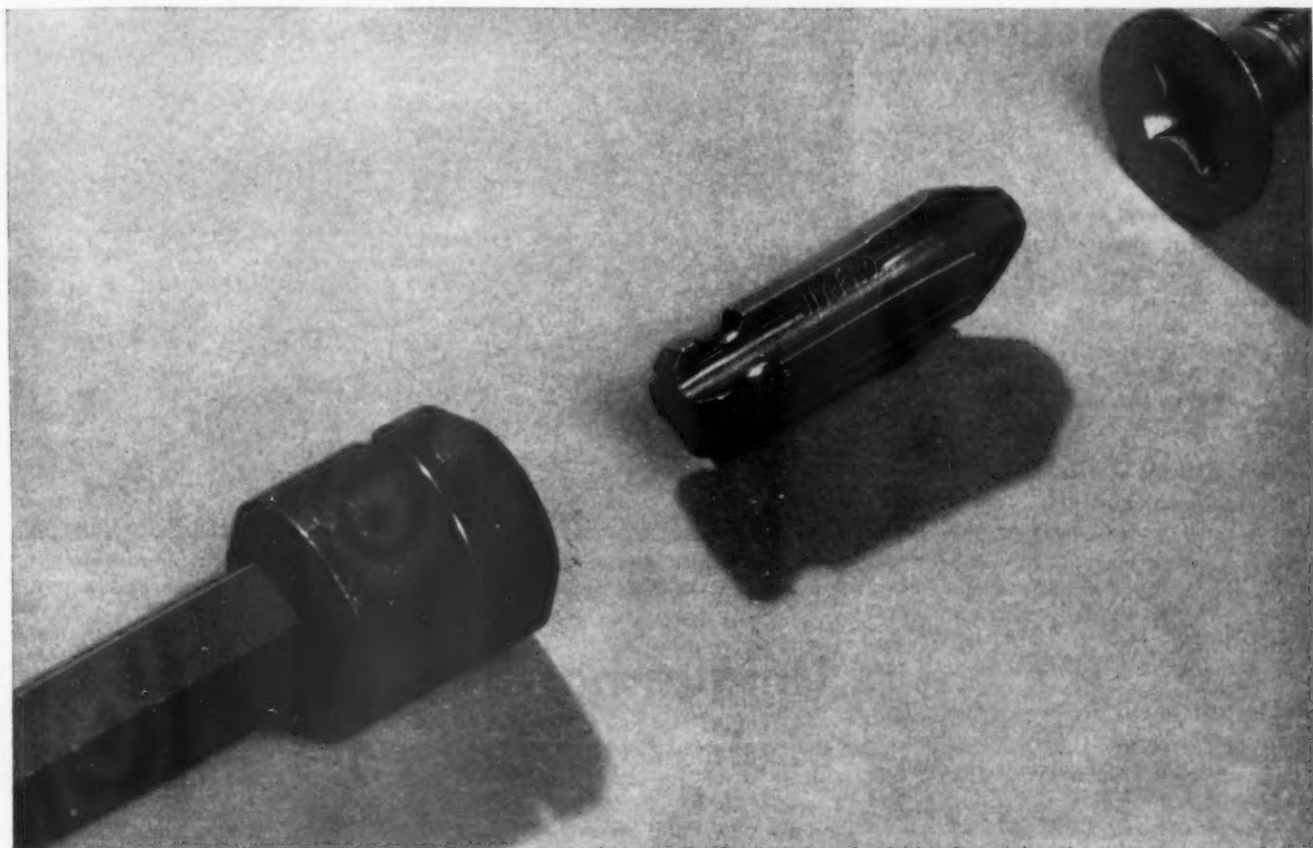
Twin City Plant Visit

The program committee together with member Clayt Oliver of Northrup King & Co. arranged a plant visitation at Northrup King for members of the Twin City Association of Purchasing Agents. Following this interesting tour, there was a regular dinner meeting in the Gold Room of the Radisson Hotel. Guest speaker was Professor Mark Graubard of the University of Minnesota. His topic was "Can Democracy Survive?" A question and answer period followed Professor Graubard's thought provoking address.

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Page 17 for additional
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Phillips "*Bits-Holders-Screws*" are Exclusive with Continental!

Here's how they can boost your output

Only the Continental Screw Co. offers this three-way fastening combination to increase your output. Phillips *bits*, *holders*, and *screws* now make power-driving really practical—even on your finished parts.

The Continental record speaks for itself. Continental Phillips Bits have driven as many as 1,000,000 screws without replacement. They average from 2 to 4 times

longer life than other bits, and have cut fastening costs as much as 50%.

This cost-saving operation might help in your plant. And remember, Phillips bits, holders, and screws are exclusive with Continental.



Continental Screw Co.

Manufacturers of Holtite Fastenings

NEW BEDFORD, MASSACHUSETTS, U. S. A.

TAYLOR

Laminated Plastics
Vulcanized Fibre

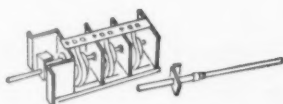
Shop Talk

TAYLOR FIBRE CO.
Plants in Norristown, Pa. and La Verne, Calif.

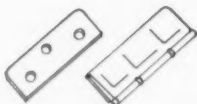
Tips for designers



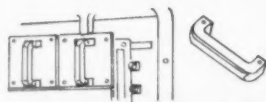
High temperatures in an aircraft generator posed a tough problem for rotor insulation . . . solved by Taylor Silicone Laminate.



Television tuner uses a shaft made of Taylor polyester glass rod . . . a strong material with excellent insulating qualities.



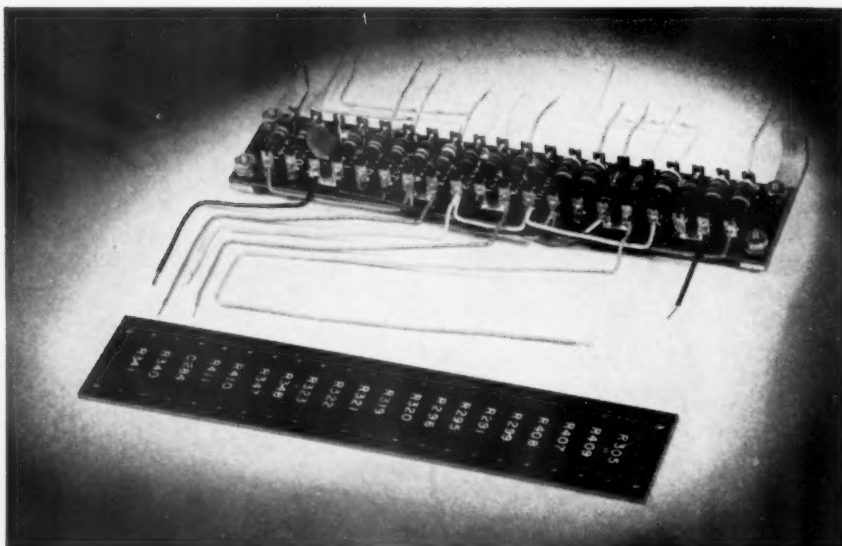
Refrigerator doors are hung with hinge spacers of Taylor Super White Vulcanized Fibre . . . tough, smooth, abrasion-resistant and readily formed.



Handles for heavy-duty fuse boxes are made of Taylor melamine laminate for resistance to arcs, corrosion . . . and for high mechanical strength.

TAYLOR FABRICATING FACILITIES

Your production problems can often be simplified . . . schedules safeguarded . . . inventory headaches cured . . . and overall costs reduced by having Taylor fabricate finished parts of vulcanized fibre and laminates to your specifications. Efficient, modern facilities are ready to serve you. Write to Taylor about your specific requirements.



Terminal boards for Hewlett-Packard high-precision electronic instrument circuit are made of Taylor XXXP-301 laminate . . . chosen for its excellent, stable insulating qualities.

Unique hot punch laminates—set new performance standards

Taylor's new "300" series of paper base laminates were developed specifically to meet the stringent demands of modern electronic products. These hot-punch materials now make it possible for you to get premium physical and electrical properties . . . without premium price.

These new Taylor materials are unique. They're uniform all the way through . . . no surface overlay of resin. Their superior performance will add to the value of your products. And their excellent fabricating qualities will give you substantial savings in production. Equally important, you are always sure of these properties in every shipment, thanks to Taylor's methods of manufacture and strict laboratory control in each phase of processing.

A wide selection of grades of the new laminates have been developed to fill varied requirements of electronics manufacturers:

XXXP-301—the ultimate in electrical properties. Unusually high insulation resistance under all climatic conditions . . . low water absorption . . . excellent punching and staking . . . phenomenal recovery. Premium performance at standard price.

XXP-351—a high-grade laminate second only to XXXP-301, with closely comparable characteristics at a lower price.

Grade 353—a quality laminate with outstanding electrical and physical properties . . . priced for economy.

Grade 354—a laminate that's especially easy to fabricate. Good stability, low water absorption, and economical price.

Grade 381—flame retardant with high arc resistance.

Plan to take advantage of these new laminates in the products you are now designing. Write to Taylor for full data, and for a consultation by a Taylor engineer.

Advertisement

For More Information Circle No. 244 on Inquiry Card—Page 17

HERE ARE THE FACTS THAT MEAN SAVINGS TO YOU



- (1) ONLY MONO-CUSHION SURVIVED THE TEST . . . the other tires were too damaged for normal use. TIRE "A" lost a section of tread 6 inches long and 1 inch deep. TIRE "B" was badly chipped and had two deep splits that reached almost to rim. This is additional proof that *Mono-Cushion* is a better buy . . . it costs less initially and lasts longer.
- (2) MONO-CUSHIONS GIVE YOU MORE TON-MILES PER DOLLAR . . . because the rubber stocks developed especially for these tires are compounded from *higher quality materials than are used in the best "premium" passenger car tires*. This is no idle claim. It is another fact previously known only by Monarch's key personnel.
- (3) MONARCH SUPPLIES PERFORMANCE-PROVEN INDUSTRIAL SOLID TIRES. Working closely with lift truck manufacturers, Monarch engineers have created tire and tread designs that assure maximum cushioning action for vehicles, loads, floors and drivers. A leading supplier of pressed-on tires, Monarch has a type and size to meet every lift truck requirement.

WHEN YOU NEED TIRES, REMEMBER MONARCH
... THE KING OF THE SOLIDS

- YOUR NEAREST MONARCH TIRE
- DEALER is listed in the Yellow Pages
- under "Trucks-Industrial-Parts & Supplies" or "Tires-Industrial". If current
- directory does not have a listing, write
- direct for complete catalog and name
- of nearest dealer.



459 Lincoln Park • Hartville, Ohio
7-255 General Motors Bldg., Detroit 2, Mich.

For More Information Circle No. 247
on Inquiry Card—Page 17

FEBRUARY, 1955

Chemical Buyers Meet

The Chemical and Allied Products Buyers Group of N.A.P.A. held their annual mid-winter conferences in Chicago at the Palmer House Hotel on January 18 and in New York at the Hotel Commodore on January 25.

Topics taken up at the meetings included the place of the chemical buyer in management, the value of cost-price analysis in chemical buying, techniques of market research for the chemical buyer, analysis of chemical packaging costs, new sources of coal chemicals, and what to watch for in the acetone, ethanol, rosin, and soda ash markets.

G. H. Reinier of Abbott Laboratories served as chairman of the meetings while G. C. Fordyce of American Cyanamid acted as vice-chairman. A full report of these conferences with pictures will appear in the March issue of *PURCHASING*.

Lancaster PAs Visit York

Members of the Lancaster Purchasing Agents Club were guests of the York Purchasing Agents Club recently. Guest speaker at the joint meeting held in the Dutch Club in York, Pa., was Charles Dinise Jr., assistant manager, trade relations, Bethlehem Steel Co. Mr. Dinise was formerly assistant purchasing agent of Bethlehem Steel and was well qualified for his topic, "What Management Expects of Purchasing."

New members of the Lancaster organization are Theodore W. Chase of Pennsylvania Water & Power Co., and Donald C. Donnell of the New Holland Machine Division of Sperry Corp.

PAs Plan Charity Drive

Members of the Purchasing Agents Division of the Federation of Jewish Philanthropies met recently at the Waldorf Astoria Hotel to plan and program a campaign designed to raise \$16,950,000.

The meeting was attended by an enthusiastic, active group, presided over by division chairman, Joseph P. Ogulnik, purchasing agent of Park and Tilford. Among those present were Frank Duski, of A. S. Beck Shoe Corporation; Arthur D. Friedel, of Frederick Atkins; Morton H. Rogow, of Gimbels' and Saks 34th Street; Mitch Stone, of Mary-

land Match Company; Leonard Sudnow, of Guardian Printing and Lithograph Company, and Mark N. Trostler, of Shelton Manufacturing Corporation.

Proceeds of the annual Federation maintenance campaign will be used to support the network of 116 hospitals, social and welfare agencies which annually serve 600,000 men, women, and children of all races and creeds. Services are provided in the fields of hospital and medical care, child care, family service, services to the aged, and community centers. Facilities are available throughout New York City, Long Island and Westchester.

Natural Gas Discussed at Washington Ass'n Meet

Guest speaker at the December meeting of the Purchasing Agents Association of Washington was J. Wilson Gaw, assistant to the president, Seattle Gas Co.. His topic was "The Impact of Natural Gas on the Pacific Northwest." Harry S. Beecham, chairman of the Education Committee, presented late releases from N. A. P. A.

On December 14, a special education panel meeting was held at the Seattle Y. M. C. A. The subject was "Should the Purchasing Department Make Employee Purchases?" Speakers were John S. Robinson of Todd Shipyards Corp. and Harold Roslund of New England Fish Co. E. R. Joubert of Puget Sound Power Light Co. served as moderator.

Dallas Association Activities

On December 8, the Purchasing Agents Association of Dallas held its annual Ladies Night Party at the Lakewood Country Club. Following cocktails, hors d'oeuvres, and a buffet dinner, PAs and their wives enjoyed dancing with music by the Judy Peacock Trio.

At the November meeting, members heard a discussion of a topic of interest to many PAs in the Dallas area. Featured speaker was Kenneth Robins, service manager, field operations, Otis Engineering Corp. Mr. Robin's topic was "Permanent Completions of Oil and Gas Wells."

USE INQUIRY CARD
PAGE 17

Here's the device that simplifies
metal hose buying for you...



**Use it to call your
FLEXONICS distributor**

- 1 A complete selection from a single source**—your Flexonics Distributor stocks the most complete line of flexible metal hose products offered by a single manufacturer—one call or one order will cover all your varied needs.
- 2 On-the-spot service**—The nationwide network of Flexonics Distributors backed by Flexonics Corporation Sales Engineers assures you of prompt, competent service wherever you are.
- 3 Top quality and the best value**—Over fifty years manufacturing experience and volume production assure you of a top quality product at a price that gives you the best value.
- 4 Backing by a reputable manufacturer**—An established, responsible manufacturer operating six plants and a company owned assembly warehouse stand behind every piece of Flexon hose.

If you do not already have the name of your Flexonics Distributor, we'll be happy to send it to you. And for your next metal hose requirements, call your Flexonics Distributor. We're sure you'll find it the profitable way to buy metal hose.

Flexonics Corporation..... CHICAGO METAL HOSE DIVISION
1316 S. THIRD AVENUE • MAYWOOD, ILLINOIS

Flexon identifies products of Flexonics Corporation that have served industry for over 53 years.



— FORMERLY CHICAGO METAL HOSE CORPORATION —

Manufacturers of flexible metal hose and conduit, expansion joints, metallic bellows and assemblies of these components.
In Canada: Flexonics Corporation of Canada, Ltd., Brampton, Ontario

For More Information Circle No. 247 on Inquiry Card—Page 17

Program Aids

A 36 page catalog providing complete information on Westinghouse sound motion pictures and slide films is now available. For easy reference the film subjects are listed and classified into three groups; general interest, product information, and training films and instruction courses. Order forms are enclosed with each catalog. The sound films, both in color and black and white, are loaned at no charge and are available in 16mm. Write Westinghouse Electric Corporation, P. O. Box 2099, Pittsburgh 30, Pa., for a copy of catalog B-6505.

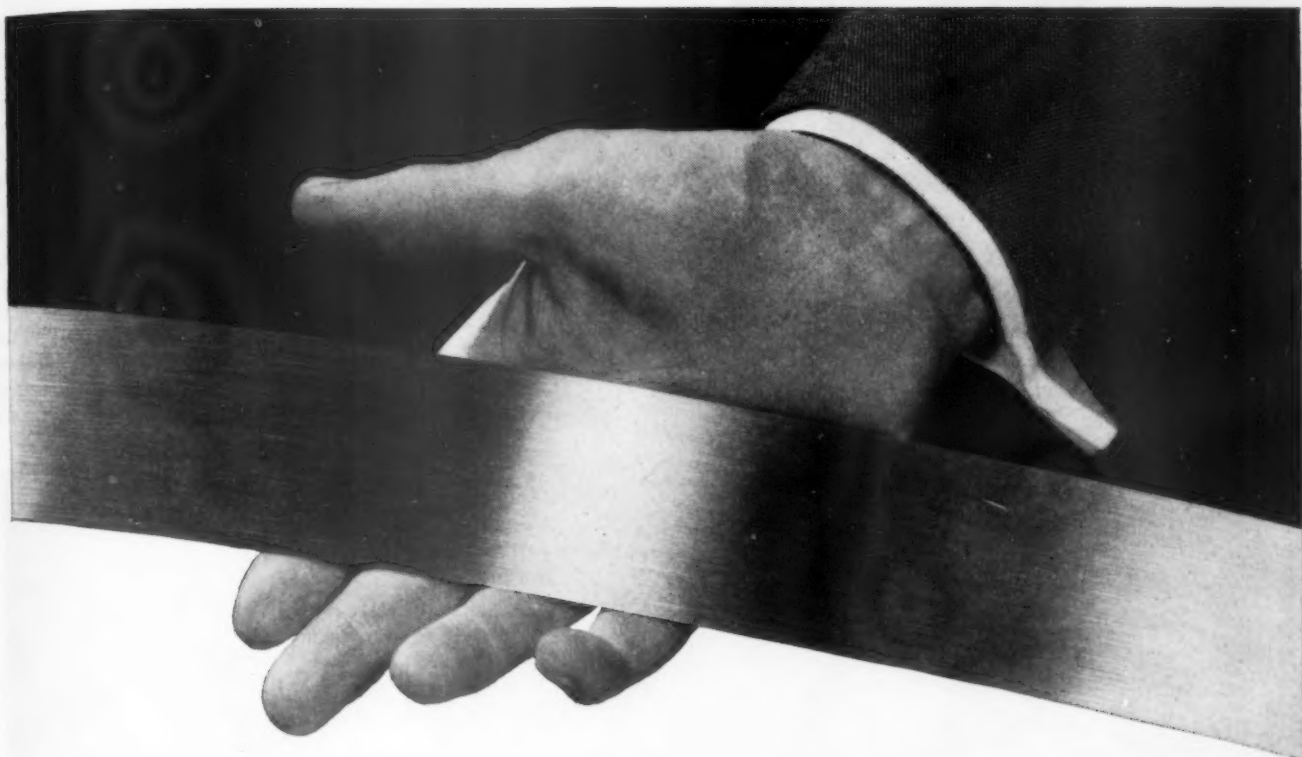
The Sheffield Corporation, Dayton 1, Ohio, announces release of two technical automatic sound slide films. "Machining the Unmachinable" is the story of how the hardest materials known to man are machined by ultrasonic energy with Sheffield's Cavitron. Running time is 16 minutes. "New Horizons for Quality" describes applications of the air gaging cartridge, Plunjet, in machine control, multiple dimension inspection, and other applications. Running time is 14½ minutes. Both films are available for loan at no charge by writing Sheffield Corporation.

"Precision Metal Forming," a color movie, describes a process of metal forming now being used for producing many aircraft parts. It traces the development of the radial draw former, a machine which combines the principles of rotary stretch and rotary compression forming. The machine can produce rings, arcs, curves, joggles, reverse bends, and shapes in stainless steel and aluminum. Running time is 31 minutes and the movie is available from the Cyril Bath Co., 32314 Aurora Road, Solon, Ohio.

"Production Band Machining" is a 16mm sound film which deals with a completely different concept for rapid machining in the production of duplicate parts. With a contour cutting band machine, unwanted material can be removed in whole salvageable section by machining directly to the outline of the part. Also, the downward pressure of the tool eliminates the need for time-wasting hold-down clamps. Running time is 30 minutes. The film is available for loan without charge from The DoAll Co., 254 N. Laurel Ave., Des Plaines, Ill.

For More Information Circle No. 248 on Inquiry Card—Page 17→

PURCHASING



How temperamental can a piece of steel be?

● Plenty! Because steel is one of the most *versatile* of all materials, it can play tricks on you . . . can be mighty temperamental, even obstinate. But, properly controlled, it works for you precisely the way you want it to!

For generations, National-Standard's Athenia Steel Division has specialized in the behavior engineering of high carbon steel for the most exacting services. Here, they've learned how to take the fullest *advantage* of steel's versatility. It

results in specially engineered, rigidly controlled steels that do a *better* job in all kinds of products from umbrella ribs and pen points to camera springs and piston rings.

Perhaps defense production brings you new problems in the application or behavior of steel. National-Standard and Athenia offer you the kind of engineering and development service that has speeded production and cut costs for many and many a manufacturer.



DIVISIONS OF NATIONAL-STANDARD CO.

ATHENIA STEEL.. Clifton, N. J.....	Flat, High Carbon, Cold Rolled Spring Steel
NATIONAL-STANDARD.. Niles, Mich.....	Tire Wire, Stainless, Fabricated Braids and Tape
REYNOLDS WIRE.. Dixon, Illinois.....	Industrial Wire Cloth
WAGNER LITHO MACHINERY.. Jersey City, N. J.....	Metal Decorating Equipment
WORCESTER WIRE WORKS.. Worcester, Mass.....	Round and Shaped Steel Wire, Small Sizes

For More Information Circle No. 249 on Inquiry Card—Page 17

FEBRUARY, 1955

217



For a **Real Grip** on things

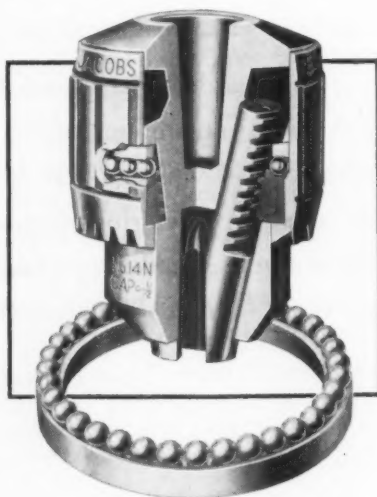
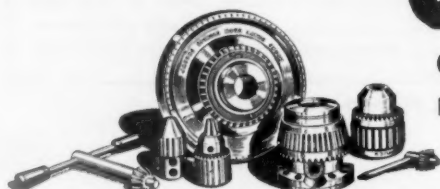
Try the Jacobs Ball Bearing Super Chuck. It's a heavy duty chuck for heavy duty drilling . . . a bear for grip and 100% more powerful than comparable plain bearing chucks.

Here's why. The ball thrust bearing rolls away friction between sleeve and nut. Steel jaws close smoothly with tremendous power. The Jacobs Ball Bearing Super Chuck grips harder, and more accurately than any other drill chuck made.

The Super Chuck and the complete line of Jacobs Chucks are stocked and sold by industrial distributors everywhere. See yours, or write Jacobs Mfg. Co., 1902 Jacobs Road, West Hartford 10, Conn. Ask for Catalog 100.

JACOBS AND YOUR LOCAL DISTRIBUTOR

are ready to deliver the chucks you need and the service you deserve.
first in chucks . . . first in service



Jacobs

CHUCKS

If it's a Jacobs it holds

The Accountant and Procurement Subject of Symposium

Mutual problems between accounting and purchasing were discussed at the Fourth Annual Symposium of the Federal Government Accountants Association. The top flight program for the Washington, D. C. meeting attracted heavy attendance. Since the Federal Government is the largest single purchaser of goods in the country, the contributions that can be made to procurement by accounting was of keen interest to government accounting personnel.



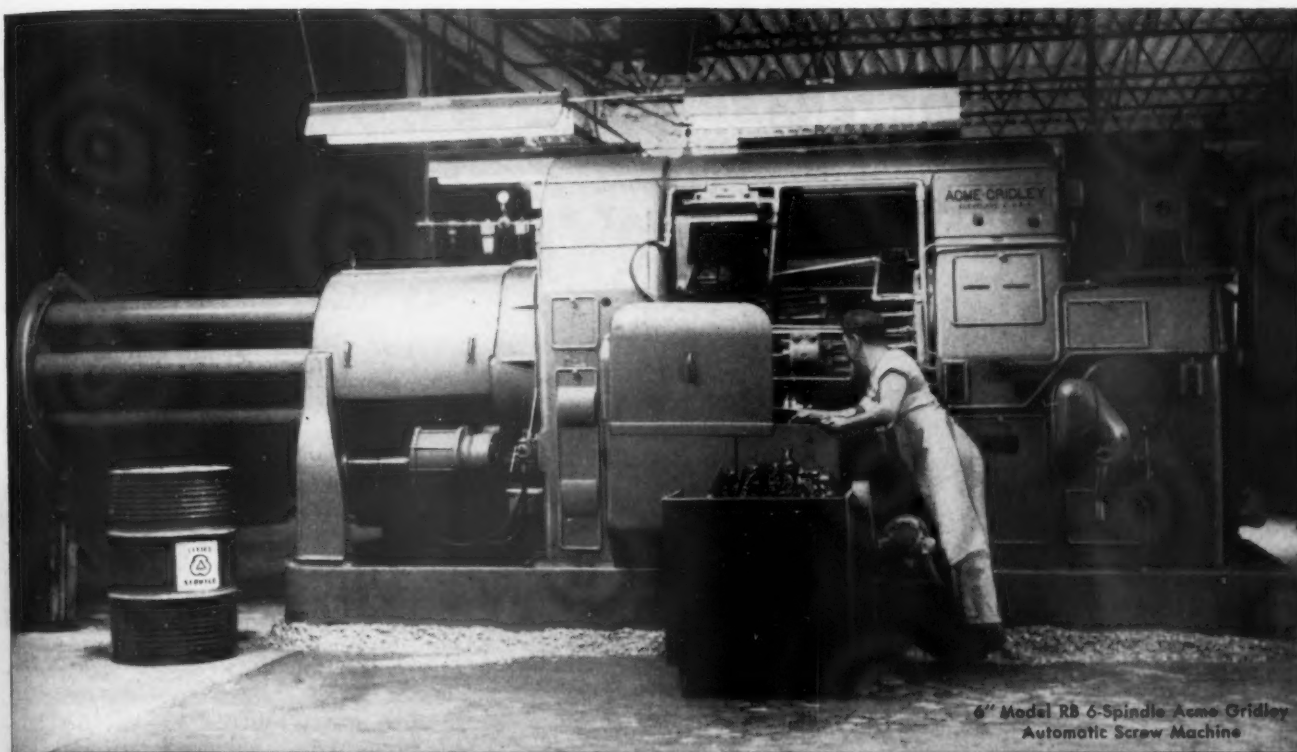
Vincent de P. Goubeau—his topic was "The Place of Procurement in the Industrial Picture."

The meeting opened with a talk, "Procurement Operations and Accounting", by Kenneth C. Tiffany, vice president in charge of finance, Burroughs Corporation. Mr. Tiffany pointed out that the cost of carrying inventories in manufacturing firms can be as high as 25% per year and is seldom less than 12%. He explained the importance of financial management working with purchasing to keep inventory investment at the minimum level which is consistent with manufacturing requirements. On the important factor of "fair price", he warned, "one of the greatest ills in pricing structure is over-specifying quality in any end use product." However, in determining a fair price, the know-how of a vendor is also an important consideration.

John W. McEachren, partner, Touche, Niven, Bailey & Smart, described "The Role of the Auditor in Procurement." He suggested that auditing "should be one of the best fields for training people to handle price negotiations with contractors as part of the procurement function."

The audience was privileged to
(Please turn to page 220)

For More Information Circle No. 250
←on Inquiry Card—Page 17



6" Model RB 6-Spindle Acme Gridley Automatic Screw Machine

ONLY 5 MORE LIKE IT IN THE WORLD!

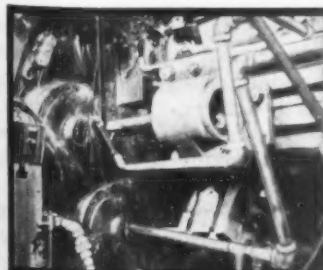
Owned by Jessen Manufacturing Company, today's most advanced automatic screw machine uses Cities Service Cutting and Hydraulic Oil

Weighing 39 tons and powered by a 60 H.P. motor, this 6-inch, 6-spindle Acme Gridley Automatic Screw Machine is one of the only six now in existence . . . and the only one owned by a job shop. Featuring a combination pneumatic-hydraulic operation, it can turn out a single load of stock weighing 3 tons!

The owner is Jessen Manufacturing Company of Elkhart, Indiana—since 1923 famous for keeping on top of new developments. It's not strange, therefore, that for this advanced new machine they chose a top quality coolant—a Cities Service cutting fluid.

Says President J. H. Jessen: "We're happy to say that the Cities Service cutting oil we use today is one of the finest all-around cutting oils we have ever used. In years past, we felt that if a cutting oil was good, it had to be black, heavy, and odorous. Cities Service has changed our minds with a cutting oil that has outstanding cooling abilities, good chip drain-off, is anti-weld . . . and yet possesses light, clear color and has no noticeable odor. In addition, Cities Service Pacemaker Oil used in hydraulic systems, and Amplex Lubricating Oil are doing an outstanding job throughout our shop. We proudly recommend all these Cities Service Oils."

For more information on the complete line of Cities Service cutting fluids, call in a Cities Service Lubrication Engineer. Or write: Cities Service Oil Company, Sixty Wall Tower, New York 5, N. Y.



Light, Clear Coolant in Acme-Gridley Automatic is Cities Service cutting oil. "Outstanding cooling, anti-weld, and chip drain-off ability," says Jessen. Firm also praises Pacemaker Oils, used in their hydraulic operations.



Jessen Mfg. Company, Inc. Mr. Jacob Jessen, Pres., in business since 1923, has earned reputation of keeping on top of new developments. In 1935, he was one of the first to install 6-spindle, anti-friction bearing screw machine.

CITIES SERVICE

QUALITY PETROLEUM PRODUCTS

For More Information Circle No. 251 on Inquiry Card—Page 17

FEBRUARY, 1955

219

DOES THIS METERABBIT

SCAMPER OFF WITH

SOME OF *Your* MONEY ?



The Meterabbit is a swifty that swoops down on your light bills and builds 'em up, if you're not too quick for him. Send him packing by maintaining a goodly supply of efficient, dependable, long-lasting CHAMPION Lamps, and by following the practical, down-to-earth suggestions in the *Champion Maintenance Manual*.*



* A complimentary copy will be off to you quick as a rabbit, if you'll say the word.



CHAMPION LAMP WORKS

324 Lynnway, Lynn, Massachusetts

(Continued from page 218)

hear a talk by the Honorable Roger Lewis, Assistant Secretary of the Air Force. Mr. Lewis heads the multi-billion dollar Air Force materiel function. He describes many of the procurement problems encountered in the rapid defense build-up that has occurred since the Korean War started.

Climax of the Symposium was an evening dinner meeting at the Willard Hotel. Featured speaker was Vincent de P. Goubeau, vice president of materials, Radio Corporation of America. Mr. Goubeau outlined "The Place of Procurement in the Industrial Picture." He told how, during the War, working with the Cost Inspection Service, RCA purchasing both steadily reduced costs and got the job done. He described some of the basic problems involved in purchasing for a large manufacturer such as RCA. Particularly interesting to the audience was Mr. Goubeau's description of the purchasing - engineering - accounting teamwork that goes into the development and procurement of new products. By working together, the three departments can obtain maximum value in terms of both design and price for the company—and ultimately for the consumer.

1 1 1

"6-Way Procurement Plan" For Industrial Trucks Announced

A new plan that permits users to obtain industrial trucks on terms best suited to their individual requirements has been announced by Lewis-Shepard Products, Inc., Watertown, Mass.

Called the "6-Way Procurement Plan", the company's offer includes (1) a broad lease program, (2) a time payment plan, (3) a short-term rental plan, (4) outright purchase, (5) a truck trial plan, and (6) a trade-in program.

Lewis-Shepard says both the equipment lease and time-payment purchase let the user obtain trucks with little or no capital outlay. Short-term rentals are said to be ideal for the many industries which have peak periods and require industrial trucks for only a few weeks or months. No-charge trials enable the customer to check his operation before placing his order, and trade-in allowances allow credit on present equipment.

A brochure describing the plan in detail is available from Lewis-Shepard Products, Inc., Watertown, Mass.



"I'd gladly
pay more
for
Barreled
Sunlight..."

...because it Costs Me Less"

This isn't double talk. It's the direct quote of hundreds of shrewd paint buyers who have specified Barreled Sunlight for many, many years. They pay more for Barreled Sunlight because it costs them less.

And here's the lay of their logic!

Barreled Sunlight may cost a few more pennies per gallon... but Barreled Sunlight is so loaded with high quality ingredients, it takes up to a gallon of thinner for every five gallons of paint. You buy less paint for the job.

And most important... Barreled Sunlight goes on so

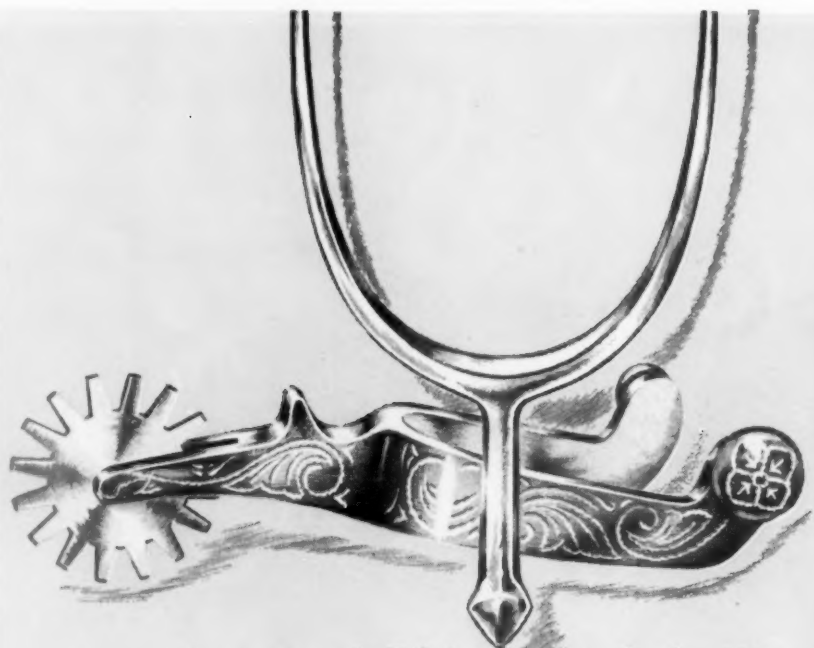
fast, solidly covers so much more area per brushful, and looks so much better longer, your painting costs go down. That's right, your painting costs... *your labor costs* which represents 80% of the total cost go down on both initial and repaint work.

Why not, right now, let our nearest representative prove to you, in your own building... on your own walls... how you can save money with Barreled Sunlight quality paints? Write and he'll call. Barreled Sunlight Paint Company, 18-BDudley Street, Providence 1, Rhode Island.

Barreled Sunlight *Paints*

In whitest white or clean, clear, wanted colors, there's a Barreled Sunlight Paint for every job

For More Information Circle No. 253 on Inquiry Card—Page 17



Choose one . . .

You can see at once that these spurs differ; serve different need. Suppliers differ. Titeflex was born and raised on a custom-engineering way of doing business. Fresh thinking comes naturally to them. Titeflex people like to tackle the tough ones.

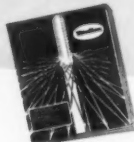
When you buy any Titeflex product you get something extra for your money—Titeflex interest in you. Take time to learn the difference. Send the coupon along today.

Titeflex

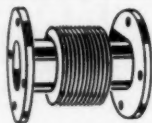
☐ Seamed and Seamless Metal Hose



☐ Ignition Harness and Shielding



☐ Precision Bellows



☐ Quick-Seal Coupling



TITEFLEX, INC.
Industrial Products Division
513 Hendee Street, Springfield, Mass.

Please send me without cost information about the Titeflex products checked above.

Name

Title

Firm

Address

City Zone State

Left—Western spur with 16-point rowel Right—English spur with straight rowel
For More Information Circle No. 254 on Inquiry Card—Page 17

Piping of Atom Powered Sub Made With Tube-Turn Fittings

The launching of the world's first atom propelled submarine, the Nautilus, on January 21, 1954, wrote a momentous chapter in naval history. It also marked another decisive engineering achievement by Westinghouse, which built the submarine's nuclear power plant.

The Nautilus' engine consists of a nuclear reactor, pumps, piping and other components. Water of the primary system is piped into the reactor where it is heated and carried to a heat exchanger. There, water of the power system is converted into heated steam. The steam operates a turbine connected to the



Fittings for the new nuclear engine propulsion mechanism. The evidence of the design skill and resourcefulness of Westinghouse's engineers is apparent on every side. A good example of their accomplishments is an electric pump motor that is literally canned in stainless steel and thus avoids conventional seal problems. It runs in hot, radioactive water pumped from the reactor to the boiler engine in a closed circuit.

Of particular interest is the piping employed in the nuclear power plant. It is fabricated of Type 347 stainless steel, to assure maximum service life under the critical conditions encountered. Flow impediments are minimized, joint leakage eliminated and space saved by making directional changes with TUBE-TURN welding fittings, produced by Tube-Turns, Louisville, Ky., a division of the National Cylinder Gas Co., Chicago.

1 1 1

New Steel Container Capacity Restrictions Aid Two Industries

New uniform capacity restrictions originally proposed for a number of ICC specifications by the Steel Shipping Container Institute, Inc., New York, to provide added capacities for the petroleum and chemical industries, have been adopted by the Interstate Commerce Commission, effective December 2.

The specifications affected are ICC-5B, 17C, 17E, 17H and 17X, wherein minimum actual capacity of containers is defined as not less than rated (marked) capacity plus 4 per cent and maximum actual capacity as not greater than rated (marked) capacity plus 5 per cent or rated (marked) capacity plus 4 per cent plus 1 quart whichever is greater.

Amendments are the result of long intensive study of the present-day requirements of the chemical and petroleum industries by the Steel Shipping Container Institute Technical Advisory Committee in cooperation with the Petroleum Packaging Committee of the Packaging Institute and the Manufacturing chemists' Association Metal Packages Committee. The capacity proposals were adopted by the Bureau of Explosives upon the approval and recommendation of the latter two organizations.

1 1 1

Conveyor Belt Moves Items Up Steep 45° Slope

Paper board cartons, wooden cases, cellophane-wrapped articles and merchandise of many kinds may now be carried up inclines as steep as 45 degrees without "avalanching," by a new conveyor belt with a slip-resistant surface developed by United States Rubber Co., New York City.

The lift angle of the new belt, called U. S. SteepGrade Package Conveyor, is as much as 50 per cent steeper than that of most conventional package belts. Tough, springy, rubber cleats covered with tiny grippers on the surface of the belt, also hold packages firmly on steep descents. The belt is self-cleaning. As it flexes over pulleys, the cleats, which are arranged in staggered rows, spread apart, throwing out dirt and other foreign material. When used outdoors on portable conveyors, the cover design will allow water to run off easily on a rainy day.

Molded construction of the belt anchors the cleats strongly to the carcass and prevents them from being torn loose by heavy cases. One square foot of the cover contains approximately 960 cleats. The cleats are 5/32-inch high, 1/2-inch wide and 1/8-inch long, and are spaced in diagonal rows 1/8-inch apart both lengthwise and crosswise. Belts are made in widths up to 48 inches.



...to handle vibration,
temperature and corrosion headaches
in conveying applications

Do you have to conduct water, solutions, fuel, lubricants, oxygen or other gases or liquids between two points which may not remain fixed? Your answer is Titeflex flexible metal hose.

Titeflex offers you just about everything you could wish for in metal hose—seamed or seamless, braided or unbraided, a wide choice of alloys and fittings. And Titeflex has the originality and experience to simplify your design difficulties—the laboratory control and development engineering assistance you want behind you. All you have to do is send your drawing; we fill in the exact hose type required. **Telephone or mail in the coupon for full information about metal hose and its uses, catalog #200.**



Titeflex

FLEXIBLE METAL HOSE

TITEFLEX, INC.

Industrial Products Division
513 Hendee Street
Springfield, Mass.

Your knowledge of metal hose applications may be helpful to us.
Please send your complete catalog—without obligation.

Name _____

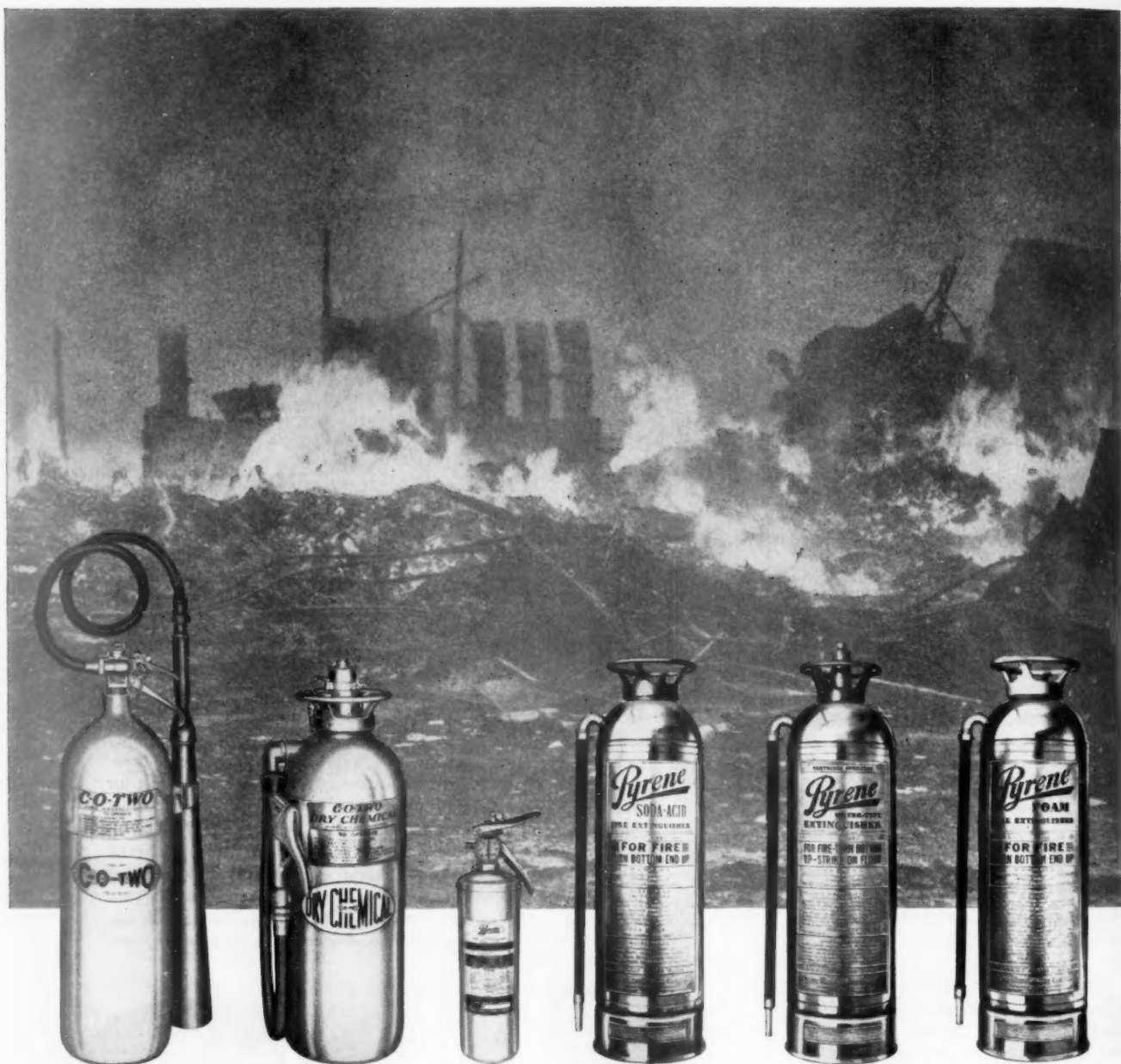
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City _____ Zone _____ State _____

For More Information Circle No. 255 on Inquiry Card—Page 17



ALL TYPES...ANY CLASS FIRE!

Since different fire hazards require different types of fire extinguishers, PYRENE—C-O-TWO manufactures all types . . . the finest and most complete line on the market today.

When doing business with PYRENE—C-O-TWO, you receive unbiased advice on what is best for your particular fire hazards, whether class A, B or C.

Also, there is a well-rounded sales engineering organization having nation-wide representation to render top quality service wherever you're located.

Don't take unnecessary chances . . . the extensive fire protection experience of PYRENE—C-O-TWO over the years is at your disposal without obligation. Get complete facts now!



PYRENE — C-O-TWO
NEWARK 1 • NEW JERSEY

Sales and Service in the Principal Cities of United States and Canada

COMPLETE FIRE PROTECTION

portable fire extinguishers . . . built-in fire detecting and fire extinguishing systems

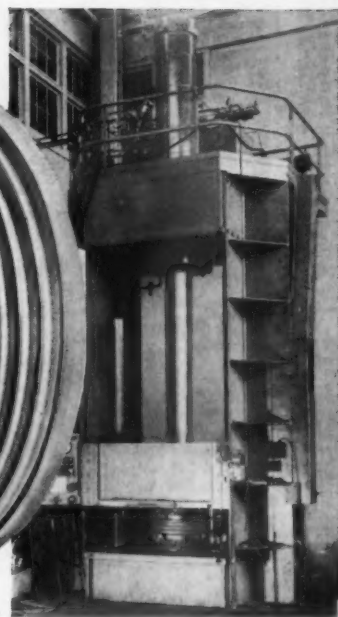
CARBON DIOXIDE • DRY CHEMICAL • VAPORIZING LIQUID • SODA-ACID • WATER • CHEMICAL FOAM • AIR FOAM

For More Information Circle No. 256 on Inquiry Card—Page 17



How many
push-ups
in a

STAINLESS TUBE?



Courtesy: American District Steam Co., Inc.

The service life of this corrugated element depends on its ability to do push-ups.

Hydraulically formed from a welded stainless steel tube, it's a vital part in a Corruflex pipe expansion joint. In operation it absorbs the motion that results from pipe expansion and contraction. Often used in inaccessible locations, it's produced to rigid standards to eliminate shutdowns . . . loss of manhours . . . and maintenance costs.

In a recent durability test (see photo) the joint was subjected to 22,000 push-ups . . . 22,000 complete cycles of extension and compression—without failing. Flexing was stopped only be-

cause requirements had been met. Trouble-free tubing for this grueling application is regularly furnished by Frasse—in stainless types 304, 316 and 347—in sizes from 4 1/4" O.D. up to 54 3/4" O.D.!

Frasse specializes in furnishing *quality* tubing for exacting applications—and stocks in conveniently located warehouses a complete range of sizes in carbon, alloy and stainless analyses for you to work with. And, equally important, Frasse engineers will gladly work with you in determining the right size and grade needed to do the job. When you need tubing or tubing guidance—always call Frasse.

FRASSE
*for everything in
Steel Tubing*

If you use tubing . . .

Send for this new folder describing all Frasse tubular products. Details include analyses, size ranges, mechanical and physical properties—also fabricating hints and ideas for end uses. Frasse tubing "specials" are included too! Mail the coupon for your copy—it's free!



Peter A. FRASSE and Co., Inc.

NEW YORK 13, N. Y. 17 Grand Street • WAlker 5-2200
PHILADELPHIA 29, PA. 3911 Wissahickon Ave. • BAldwin 9-9900
BUFFALO 7, N. Y. P. O. Box K, Sta. B • BEdford 4700
SYRACUSE 1, N. Y. P. O. Box 1267 • SYracuse 73-5241
HARTFORD 1, CONN. P. O. Box 1949 • CHapel 6-8835
LYNDHURST ROCHESTER BALTIMORE

Peter A. FRASSE and Co., Inc.

17 Grand Street, New York 13, N. Y.

Please send a free copy of your folder on steel tubular products.

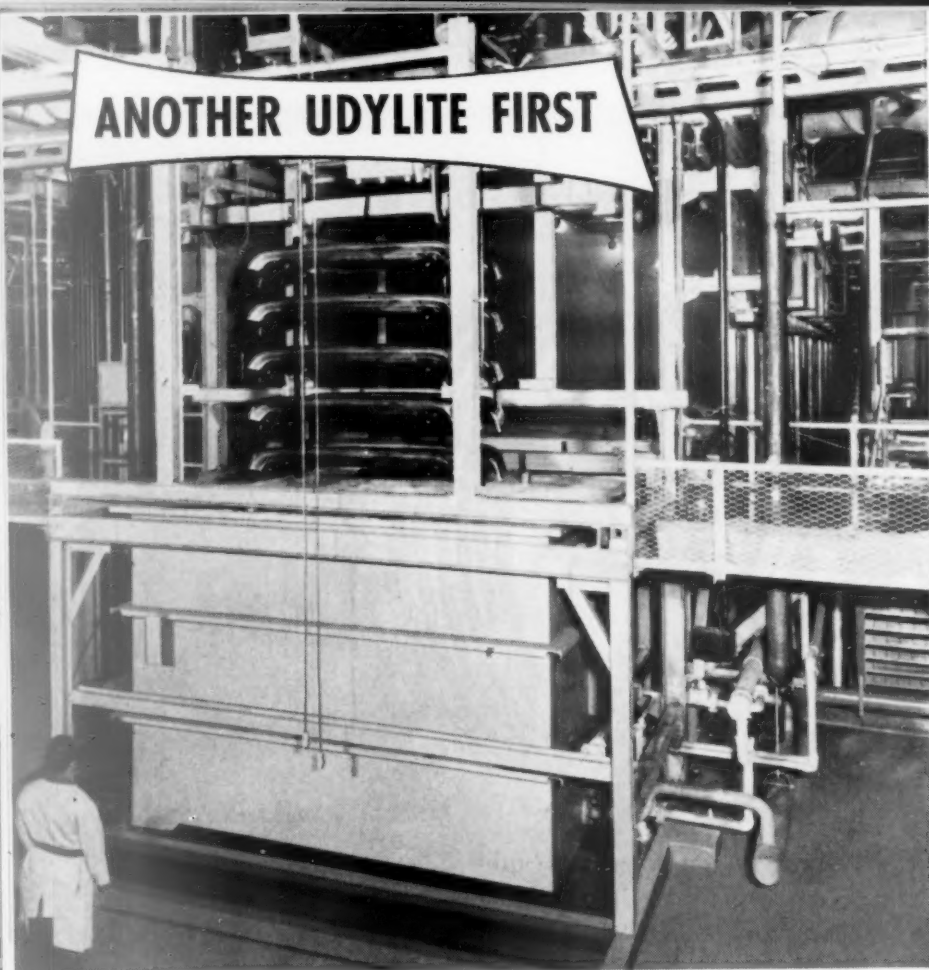
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Firm _____

Address _____

For More Information Circle No. 257 on Inquiry Card—Page 17

ANOTHER UDYLITE FIRST



480 FEET OF PLATING EFFICIENCY

Udylite Selective Cell Plating Machine Electroplates 360 Automobile Bumpers Per Hour

Today in one of the nation's largest automobile plants, bumpers are being copper, nickel, chrome plated with a quality of finish and efficiency of operation unmatched by any other method. This work is being done on a new automatic electro-plating machine—a product of Udylite research—which incorporates features exclusive in Udylite equipment.

The Udylite design allows for automatic selection of empty plating cells as the racks emerge from preceding operations. As they drop into the cells they fit around anodes in the tank that are hung to conform with the shape of the bumper. This assures quality plate on all curved surfaces. Efficiency in rack utilization is also a feature, for of the 84 racks used for the machine, only four are out of service during the normal plating cycle.

Udylite builds plating and metal finishing machines large and small. The Udylite Full Automatic was the first standardized plating machine ever offered to the industry. It brought economy, high production and process control at a low installation price.

If you have a plating problem it will pay you to consult Udylite. Write to:

THE
Udylite
CORPORATION
DETROIT 11, MICHIGAN

**WORLD'S LARGEST
PLATING SUPPLIER**

Offer Extended Payment Plan For Machine Tools

A new extended payment plan has just been announced by the Gisholt Machine Company, machine tool builders. This new plan, coupled with leasing plans announced in April, 1954, provides a complete program which makes it easier for many firms to have the advantage of the most modern Gisholt tools at all times.

In setting up its new plan, Gisholt has gone beyond the usual financing plans to accommodate and save money for the customer. For example, any new Gisholt machine can now be obtained with an initial down payment of only 20%. The balance may be spread in equal payments over 12, 24, 36, or 48 months, depending upon the plan selected.

The Gisholt method also reverses the usual pattern of handling interest charges by starting with the lowest amount and gradually increasing. This method favors the buyer because it gives him the use of that much more cash during the earlier payments. Also, since the buyer has the privilege of pre-paying notes at any time without penalty, he may thus avoid the higher interest payments toward the end.

Low interest rates range from 3.25% on the original unpaid balance for the one-year plan to 3.06% for the four-year plan. Gisholt also absorbs legal fees up to the time the machine is shipped.

Gisholt has prepared a new bulletin on the subject of leasing and buying industrial equipment. It discusses leasing and time payment plans, makes cost comparisons, outlines depreciation under the new tax codes, etc., so that the user can appraise his own situation and find the best answer to his own particular questions. Copies may be obtained from Gisholt Machine Co., Madison 10, Wis.

1 1 1

G. E. Bulb Prices Incorporate Tax

General Electric today announced that its prices for lamp bulbs would be revised to incorporate the federal excise tax, which heretofore has been collected as a separate item.

The new prices, effective November 1, will involve light bulbs and tubes including types used in stores, offices, factories and homes. In addition, adjustments both upward and downward have been made in the prices of individual lamps.

For More Information Circle No. 258
←on Inquiry Card—Page 17

This is to announce

GAGES *by* CARD

Card proudly introduces a select line of precision gages, with the same quality of manufacture associated with Card taps over the past 80 years. Inspect these gages at your distributor's now.

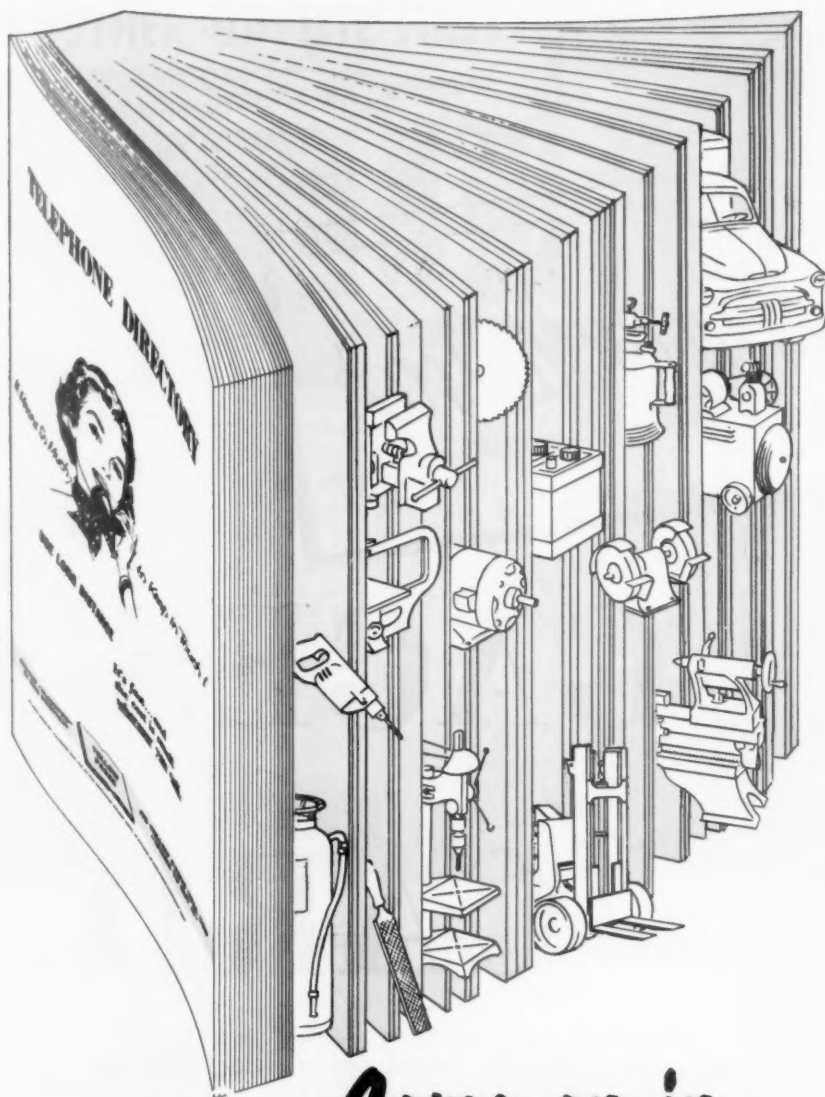
Contact your local Card Distributor for prompt deliveries and helpful service.



S. W. CARD MANUFACTURING CO.
MANSFIELD, MASS.

DIVISION OF UNION TWIST DRILL CO.
TAPS • DIES • SCREW PLATES • GAGES





Come on in... the buying's fine!

No Purchasing Agent likes to waste time finding suppliers whose names, addresses or telephone numbers he doesn't recall. That's why so many P.A.'s use the convenient 'Yellow Pages' of their telephone directory.

The 'Yellow Pages' give you a quick, easy way to locate suppliers for practically every type of industrial product or service.

Keep the 'Yellow Pages' handy at all times. They're a mighty convenient buying guide.



AMERICA'S
BUYING GUIDE
FOR OVER
60 YEARS

For More Information Circle No. 261 on Inquiry Card—Page 17

'Operation Insight' Brings PA's, Engineers to Aircraft Plant

Aero Supply Mfg. Co. Inc., Corry, Pa., manufacturers of aircraft hardware and components, recently played host to representatives of airframe and aircraft engine manufacturing plants to unveil some new developments of interest in the industry.

Named "Operation Insight," the event brought purchasing agents, engineers, and plant officials from aircraft companies throughout the northeastern United States. Brought to Corry by air, the visitors heard a series of concentrated lectures by top engineering personnel of Aero Supply, designed to provide an insight into recent progress in the field of research and development currently underway in the plant and to point out recent modernization activities.



An Aero Supply guide explains the details of one of the newer developments in aircraft fuel level control systems with the aid of displays specially designed for "Operation Insight."

Following the formal lecture and seminar period, the guests were driven to the plant, where they were taken on tour of such points as testing facilities of the company's engineering department, sections of the engineering department in which phases of research work are being carried out, and the plant's production and assembly departments.

Included in the companies sending representatives to the affair were Grumman Aircraft, Republic Aviation, Bell Aircraft, Pratt & Whitney, Kaman Aircraft, Fairchild Aircraft, Glenn L. Martin, Piasecki Helicopter, Westinghouse A.G.T. and Piper Aircraft.

William H. Coleman, president of Aero Supply, told the guests at departure time that he hoped "Operation Insight" had accomplished its purpose. "We hope you share our feeling that this visit has been so effective that we should begin to think about 'Operation Insight II.' We have endeavored here to point

(Please turn to page 232)

For

FAST

Production of
High-Strength
Parts



Use **BRIDGEPORT** Aluminum Bronze Rod

- machines 50 to 75% as fast as Free-cutting Brass.
- has 85,000 psi tensile strength.
- gives superior resistance to corrosion and wear.
- is 50% stronger—9% lighter than Naval Brass.



Write for your copy of Bridgeport's Manual on Aluminum Bronze and other high-strength alloys.

To speed up production of screw machine parts requiring high strength and outstanding durability, use Bridgeport Aluminum Bronze, Alloy 707. It gives superior service in wire and cable connectors, bolts, nuts, gears, pump parts and many other applications where dependability is a vital requirement.

Bridgeport Aluminum Bronze is one of a wide variety of Bridgeport Alloys that meets almost every screw machine requirement. Your nearest Bridgeport Sales Office can give you complete information on any Bridgeport Alloy and also offer you the advantages of our Technical Service to help you solve methods and metals problems.

BRIDGEPORT BRASS COMPANY ♦ **BRIDGEPORT, CONNECTICUT**

Serving Industry With a Nationwide Network of Conveniently
Located Sales Offices and Warehouses



Mills at Bridgeport, Conn., Indianapolis, Ind., and Adrian, Mich.
In Canada: Noranda Copper and Brass Limited, Montreal

Mold-Making Is A Special Skill At **KUHN & JACOB**



A view of our extensive MOLD-MAKING DEPARTMENT

Like anything else worth while, good molds take time to produce. To the skilled craftsmen in our molding department, precision is all important. The final result is well worth waiting for.



Send for Booklet
describing our
complete
facilities.

Experience and skill combine to produce plastic molding of uniform excellence at KUHN & JACOB. Not only are the principals personally familiar with all phases of the business, but in the early days of the company some actually produced the molds themselves. Because of their intimate knowledge of the processes of production, there is the closest co-operation between the drafting room, the mold-making shop and the molding division. This assures complete satisfaction for K. & J. customers at all times.

KUHN & JACOB MOLDING & TOOL CO.

1221 SOUTHARD STREET, TRENTON 8, N. J.

CONTACT THE
K & J
REPRESENTATIVE
NEAREST YOU

For More Information Circle No. 263 on Inquiry Card—Page 17

S. C. Ullman, 55 W. 42nd St., New York, N.Y.
Telephone—Penn 6-0346

Wm. T. Wyler, Box 126, Stratford, Conn.
Telephone—Bridgeport 7-4293

Wm. A. Chalverus, Carson Road, Princeton, N. J.
Telephone—1-3170JZ

(Continued from page 230)
out the fact that Aero Supply is preparing to meet the new demands of the aircraft industry as vigorously as have each of your companies," Mr. Coleman said.

1 1 1

Says Standards Saved Taxpayers \$65 Million in First Half of '54

American taxpayers were saved \$65,000,000 during the first six months of 1954 due to use of standards by the military services. This statement was made by R. V. Vittucci, Standardization Planning Engineer of the U. S. Navy Department's Bureau of Ships, at the recent third annual meeting of the Standards Engineers Society in Atlantic City, N. J.

By using standard parts in accordance with industrial practice wherever possible, Mr. Vittucci said, 45,000 unnecessary items were eliminated from the Supply System of the Defense Department from January through June, 1954. This resulted in a saving of 120,000 cubic feet of storage space and 400,000 manhours.

Mr. Vittucci called attention to new regulations issued recently that will increase Government economies by encouraging greater cooperation between Government and industry. These regulations make it possible for Government representatives to participate with industry representatives in developing standards used by both industry and Government, thus bringing industry and Government practices more nearly in line with each other.

1 1 1

Model Purchasing Ordinance Published by Law Officers

A Model Purchasing Ordinance-Annotated has been published after a joint study by the National Institute of Municipal Law Officers and the National Institute of Governmental Purchasing.

The model is designed to assist municipalities in adopting centralization techniques based on the best in current municipal purchasing principles and techniques. The model, comprehensive in its coverage, is based on data supplied by twenty NIGP-Member purchasing officials.

Copies of the ordinance (22 pages) can be obtained from the National Institute of Municipal Law Officers, 726 Jackson Place, N.W., Washington 6, D.C., at \$2.00 each.

For More Information Circle No. 264
on Inquiry Card—Page 17—
PURCHASING

DISSTON

HAS THE EDGE®



**and blades
that hold it!**

**to give you faster, straighter
power hack sawing**

Here's the sharpest, cleanest cutting machine hack saw blade the industry has ever seen. These blades set a new standard of quality and safety. They are completely new—made by new methods, with the latest equipment. No wonder they easily meet the toughest production requirements.

Let us show you how much you will benefit. Call your Disston Distributor today. He'll put on a practical demonstration *right in your shop*. He'll let you make your own side by side comparison tests on your own machines. Also ask him about Disston's complete line of *Hand Hack Saw Blades and Frames*—for the same economies and results.

For prompt service, expert advice, reliability, many economies, on these and other Disston metal cutting products—Files, Band Saws or Solid and Inserted Tooth Metal Circular Saws, rely on your Disston Distributor. You'll get far more for your tool dollar.

send for this FREE production help!

Write for handy folder on Disston hack saw blades. It includes helpful hints to your shop men on the right number of teeth, feed and stroke—for various metals. It can save hours of production time.

Ask for Disston
Super-Safe
Hack Saw Blades

Name _____ Title _____

Company _____

Address _____

Mail to Henry Disston & Sons, Inc., 233 Tacony,
Philadelphia 35, Pa., U.S.A. In Canada, 2-20
Fraser Ave., Toronto 3, Ont.



DON'T GAMBLE *on* getting the **RIGHT** bolts

The NEW Buffalo Bolt service organization is at *your service* to make sure that you get the fasteners you need when you need them. Whether you order direct or through a Circle ® distributor.

Offering the finest and fastest service in the industry, key personnel—in the field, district offices and factory—give immediate, accurate information on prices, delivery and other pertinent data.

See for yourself on your next order.

Ask for Circle ®.

WESTERN OFFICE

Chicago

HArrison 7-2179

EASTERN OFFICE

New York City

REctor 2-1888

CENTRAL OFFICE

North Tonawanda

JAckson 2400 (Buffalo)



BUFFALO BOLT COMPANY

Division of Buffalo-Eclipse Corporation

NORTH TONAWANDA, N. Y.

Making both FASTENERS & FRIENDS for 100 years

3M Announces New Reinforced Structural Plastic Sheetting For Use In Mass Production

The first formable reinforced plastic sheeting ready for use in mass production has been announced by Minnesota Mining and Manufacturing Co., St. Paul, Minn. It is a moldable, high-strength, uniform-quality glass-reinforced product engineered for structural jobs.



The new material — sold as "Scotchply" brand reinforced plastic—is a glass-in-plastic laminate that surpasses other reinforced types by overcoming (1) variability in properties, and (2) the need for handwork in "lay-up" or production.

The new plastic consists of one or more uncured (unhardened) moldable sheets of plastic, each of which is integrally reinforced with lineally aligned, continuous glass filaments; the filaments reinforcing the sheets like "steel rods reinforce concrete".

Described as "the first truly reliable engineering laminate", the new reinforced plastic may be readily formed and then hardened or cured merely by heat and light pressure. No further chemical treatment is required.

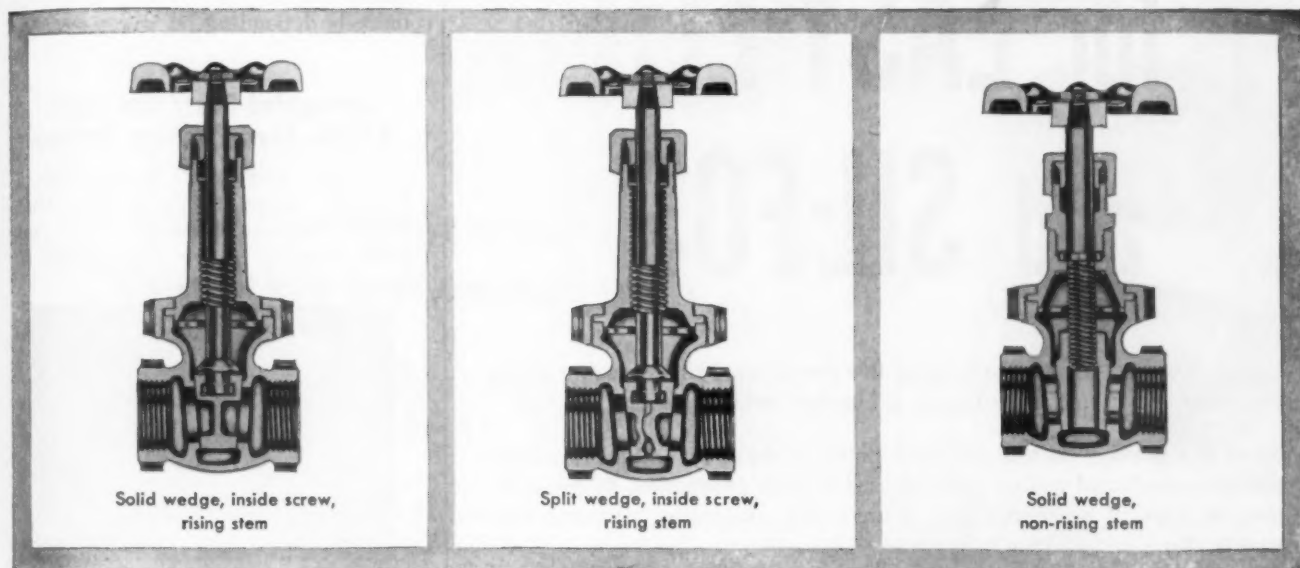
It is ready to use for drawing operations in much the same manner as sheet steel; and, since molding forces are kept small because forming is done before curing, the forming of the material is said to be easier than steel.

In its cured form the material is shatterproof, rotproof, mildewproof, and waterproof. It can be sawed, sheared, punched, drilled, sanded, painted, cemented; and polished.

It is expected that "Scotchply" reinforced plastic will be used in the making of aircraft structures, automotive parts and assemblies, electrical printed circuits, shipping containers, safety equipment, structural

(Please turn to page 240)

Oh, I see



... we've added 125 and 150 lb. bronze gate valves to our union bonnet line

Success of our 200 lb. line of union bonnet bronze gate valves necessitates expansion of the line to include 125 lb. and 150 lb. classes. Sizes range from $\frac{1}{4}$ to 2 inches.

NOTE THESE ENGINEERING FEATURES:

This line has a flat seat on the bonnet which mates against the body, providing adequate bearing area for sealing.

Tight bonnet joint, but easy access to interior for inspection and service.

Full ports permit unobstructed flow.

Back-seating arrangement permits repacking while under pressure.

Split wedge has ball in socket contact . . . permits wedge to adjust itself to seat.

Slip-on type "T" head stem-to-wedge connection.

Lug-type hexes make valves compact and provide a better wrench-gripping surface.

To learn more about this expanding line of valves, write for our *Union Bonnet Bronze Gate Valve Catalog Folder*.

THE OHIO INJECTOR COMPANY • WADSWORTH, OHIO



FORGED & CAST STEEL, LUBRICATED PLUG,
BRONZE & IRON

For More Information Circle No. 263 on Inquiry Card—Page 17

FEBRUARY, 1955

237

There's no "...or equal" for EASY-FLO and SIL-FOS

EASY-FLO and SIL-FOS are the original low-temperature silver brazing alloys conceived and perfected by Handy & Harman metallurgists.

Years of research went into the development of the alloys and the manufacturing methods and quality controls used in their production. In composition, in physical properties and in unvarying uniformity, EASY-FLO and SIL-FOS alloys stand alone.

It is from these exclusive features that EASY-FLO and SIL-FOS alloys get their remarkably fast brazing action and ability to make high-strength, liquid and gas-tight joints, consistently and at surprisingly low cost. That's why there's no "or equal" for EASY-FLO and SIL-FOS alloys when it comes to fast, reliable, economical metal joining.

and there's no "...or equal" for these SERVICES

The following technical and practical assistance is available, without cost or obligation, to all users of EASY-FLO and SIL-FOS alloys through Handy & Harman's engineering and research departments, field service staff and nearest distributor.

DEMONSTRATIONS of EASY-FLO and SIL-FOS silver brazing in your own shop.

SURVEYS of your metal joining to determine if and where EASY-FLO or SIL-FOS brazing can benefit you.

DESIGN AID for your engineers to assure best joint design for EASY-FLO or SIL-FOS brazing.

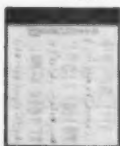
SAMPLE BRAZING of your parts by our technicians to determine the best way to silver braze them.

PRODUCTION AID to help work out the procedure that will give you the output you want at lowest cost.

OPERATOR TRAINING of your key men in our brazing schools, or by a program we set up in your plant.

RESEARCH in our laboratories to work out your special silver alloy brazing problems.

SEND FOR THIS LIST AND BULLETIN

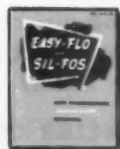


You can get the real EASY-FLO and SIL-FOS alloys, and their companion low-temperature HANDY FLUX, only from Handy & Harman Authorized Distributors. They're located in principal

centers throughout the country. Write for the "Distributor List" and contact the nearest one.

BULLETIN 20 contains the full facts about EASY-FLO and SIL-FOS. It makes

clear why these alloys are being used today, in tremendous quantities throughout all industry. It also includes useful information about joint design and fast brazing production methods. Write for a copy.



HANDY & HARMAN

General Offices: 82 Fulton St., New York 38, N. Y.
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TORONTO, CANADA
MONTREAL, CANADA

For More Information Circle No. 269 on Inquiry Card—Page 17

(Continued from page 236)

units in chemical plants, railroad cars, storage tanks, machine housings, and for various classified military applications.

The new plastic material is being sold by the pound in pilot-plant quantities, and is supplied in sheets or rolls depending on thickness.

1 1 1

Corrugated Board Has Light Finish, Good Printing Surface

A new corrugated board with a brighter, smoother finish than that found on natural finish kraft has been announced by The Hinde & Dauch Paper Company.



The new product, called "Corabrite", with a better printing surface, permits users to display their advertising messages more attractively on shipping containers. The company emphasizes that it is not a special white or colored finish, but will appear on regular factory runs. It is offered at no increase in Hinde & Dauch prices.

1 1 1

GE To Put Molybdenum Tungsten On Open Market

General Electric Co., Cleveland, has announced plans to make its pure tungsten and molybdenum products generally available on the open market. These products in the past have been offered outside the company only to a limited extent.

The announcement was made by Herman L. Weiss, manager of the company's Cleveland Wire Works, who said he had appointed John W. Forbes to his organization to implement the plant's new sales policy.

Mr. Weiss predicted that efforts of scientists to "break through the temperature barrier" will open many new fields for these metals.

To facilitate its efforts to develop new tungsten and molybdenum products, and to improve existing ones, General Electric is building a \$1,700,000 laboratory-pilot plant on the property of the Cleveland Wire Works. The structure is expected to be completed late next summer.

Your "burning question"
is quickly answered—with

B&O Bituminous

Whether your specific question concerns power, coking, steam, or space heating, you'll find the perfect answer among the wide variety of Bituminous coals in Baltimore & Ohio territory. Here lies an almost inexhaustible source of low-cost heat and energy.

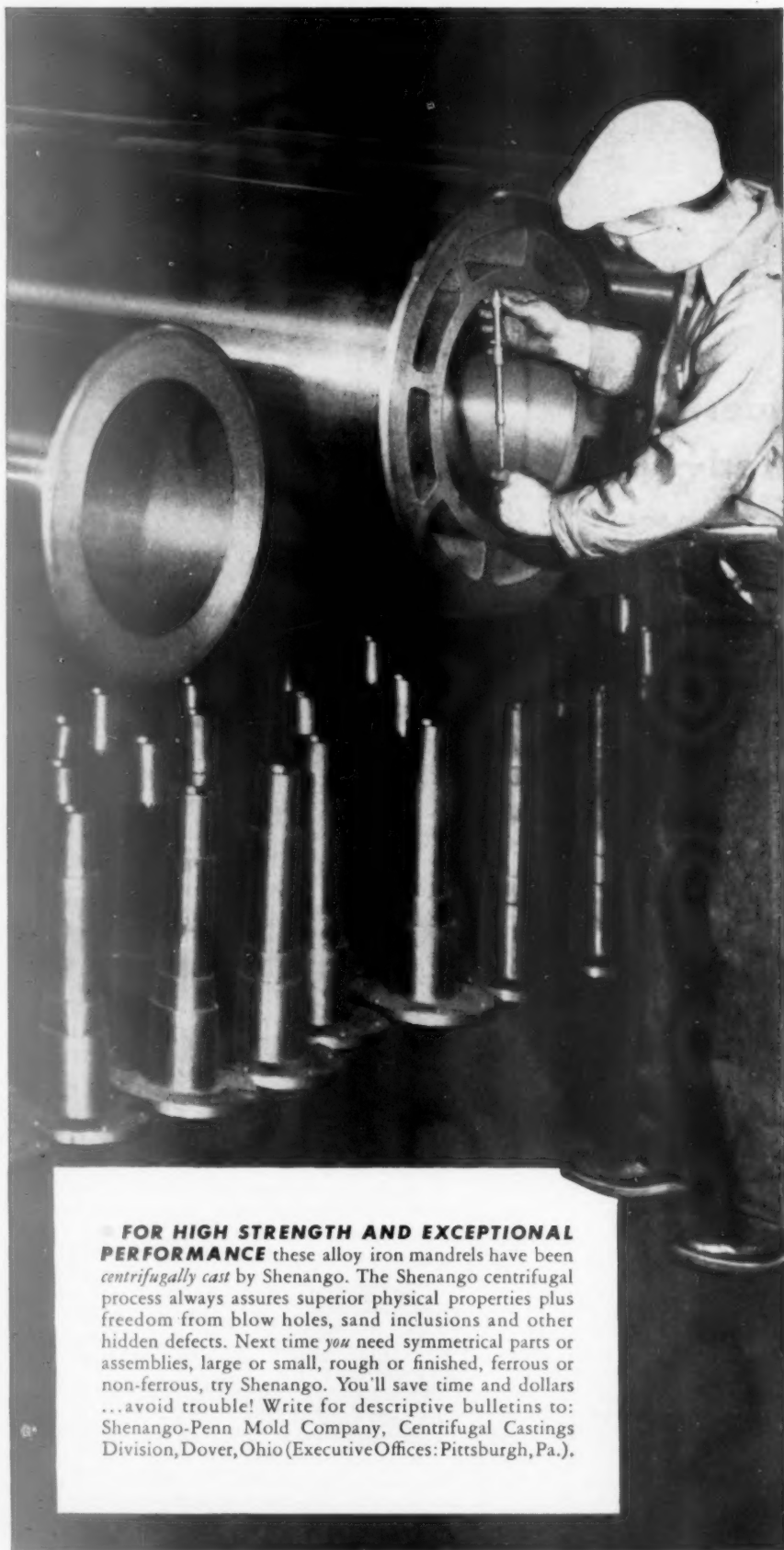
The benefits of B&O Bituminous are many. Highly mechanized mines keep production costs low, size and quality uniform. Closeness to America's industrial heart means economical transportation. The ease of storing coal eliminates the need for expensive facilities. And new methods and devices take further advantage of the burning characteristics of Bituminous.

ASK OUR MAN! He will help you find the exact coal for your purpose, and explain the best way to burn it. You'll be amazed at the efficiency, economy, and cleanliness of B&O Bituminous today.



BALTIMORE & OHIO RAILROAD

Bituminous Coals for Every Purpose



FOR HIGH STRENGTH AND EXCEPTIONAL PERFORMANCE these alloy iron mandrels have been *centrifugally cast* by Shenango. The Shenango centrifugal process always assures superior physical properties plus freedom from blow holes, sand inclusions and other hidden defects. Next time *you* need symmetrical parts or assemblies, large or small, rough or finished, ferrous or non-ferrous, try Shenango. You'll save time and dollars...avoid trouble! Write for descriptive bulletins to: Shenango-Penn Mold Company, Centrifugal Castings Division, Dover, Ohio (Executive Offices: Pittsburgh, Pa.).

SHENANGO CENTRIFUGAL CASTINGS

COPPER, TIN, LEAD, ZINC BRONZES • MONEL METAL
ALUMINUM AND MANGANESE BRONZES • NI-RESIST • MEEHANITE® METAL

New Die Casting Techniques Revealed in Color Movie

Cost of automatic transmissions in new car models will be sharply reduced as a result of new mass production die casting techniques revealed recently. A new color film, previewed by the American Die Casting Institute at the New York Athletic Club, shows a complicated stator casting consisting of eleven curved and tapered blades and a concave hub produced economically and accurately as a single integral part in one operation by die casting. Formerly, each blade was machined individually and assembled by hand to the hub of the stator—heart of the automatic transmission torque converter.

Entitled "Die Casting—How Else Would You Make It," the new film was shown before an audience consisting of members of the Institute as well as metallurgical, production and design experts from consumer goods industries. Great interest was shown by the audience when it was explained that modern die casting techniques enabled mass production of torque converter automatic transmissions for the competitive low priced car market. A spectacular sequence in the film shows the complex die (used to form the stator), with the intricately shaped cavities for the blades; after the "shot" is made the die opens away in all directions, revealing the finished one-piece casting.

1 1 1

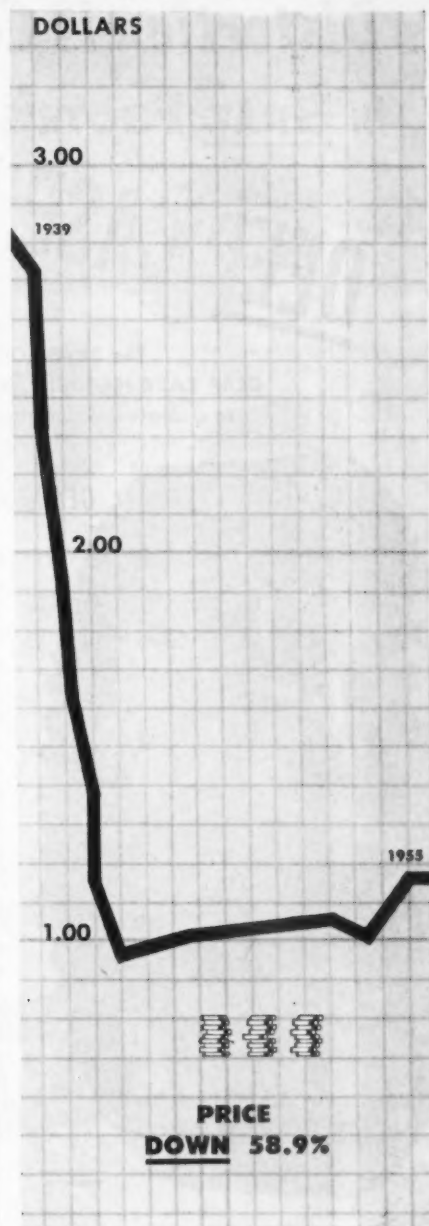
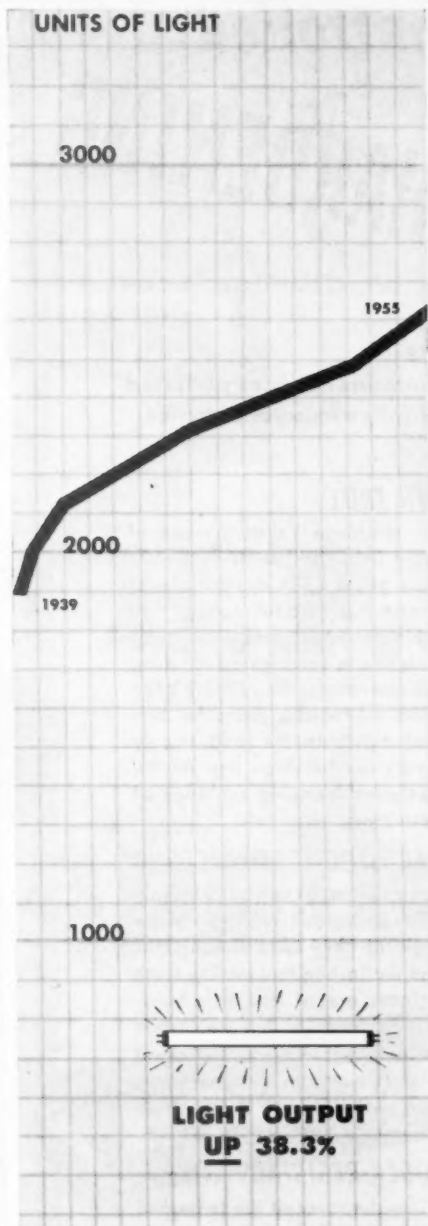
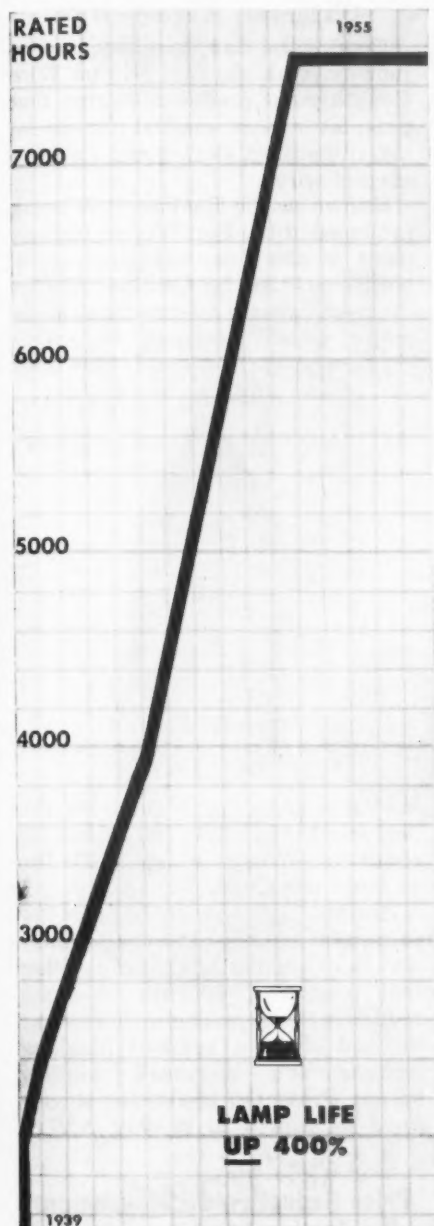
New Distributor Policy For Electrical Splicing Tapes

Important changes in the distributor policy of their Tape Department have been announced by The Okonite Company, Passaic, N. J. All Okonite quality electrical tapes will be exclusively sold through selected distributors.

Basic to this policy is a liberal Distributor Plan which provides increased profit margins, protection against loss through price changes, obsolescence and inventory problems, as well as the total elimination of direct sales. Stepped-up sales promotion and advertising campaigns are further features of Okonite's modernized Distributor Plan.

Still other features of the plan are new unit packages of the various tapes, which are expected to contribute to greater sales volume and easier handling, as well as a single, concise, easy-to-use price sheet covering all materials.

YOU EXPECT THE BEST VALUE FROM G-E FLUORESCENT LAMPS



**16 times more value for
your fluorescent lamp
dollar than in 1939**

Today you don't have to pay more than \$1.15 for the finest fluorescent lamp made: General Electric. Sixteen years ago it would have cost you \$2.80 or \$1.65 more. And while price has been going down, we've been pushing quality up. General Electric has upped light output 38%, increased lamp life 400%.

In terms of what you really judge lamps by, a General Electric 40-watt fluorescent lamp that lists at \$1.15 today is a *16-times bigger value than it was in 1939.*

For further information, contact your G-E lamp supplier or write to Lamp Division, General Electric, Department 166-P-2, Cleveland 12, Ohio.



Progress Is Our Most Important Product

GENERAL  ELECTRIC

Distortion is Controlled in **BRAD FOOTE'S** **DEEP CASE HARDENING**

The **BRAD FOOTE**
DEEP CASE HARDENING process has been perfected
to a degree which practically eliminates distortion



GEARS RUN TRUE

No place is distortion control more important than on heavy duty gears which are run almost continuously at full rating and subjected to extreme shock loads such as are encountered in rolling mill operations. **BRAD FOOTE DEEP CASE HARDENED** gears run true and distribute the load evenly across the full face and on the designed bearing surfaces of each tooth.

HARD TOOTH SURFACES

In addition, **BRAD FOOTE** rigidly controls to set standards the depth of **DEEP CASE HARDENING** and the carbon content. The tooth surfaces are of maximum hardness for long life, but the carbon content is gradually diminished at successive depths below the surface until it blends to the metal of the core itself.

SHOCK-RESISTANT CORES

Thus the cores of the teeth and the body of the gear remain ductile and shock-resistant while the teeth are given an increase in service life of over 50%.

ASK FOR QUOTATION

It will pay you to try a set of these gears on your toughest job. Send your specifications today for quotation.

BRAD FOOTE makes Spur

Bevel
Helical
Spiral Bevel
Herringbone
Zerol
Worms
Worm Gears
Reducers
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BRAD FOOTE **GEAR WORKS, INC.**

1309 South Cicero Avenue • Cicero 50, Illinois
Bishop 2-1070 • Olympic 2-7700 • TWX: CIC-2856-U

subsidiaries

AMERICAN GEAR & MFG. CO.	PITTSBURGH GEAR COMPANY
Phone: Lemont 920 Lemont, Illinois	Phone: SPaulding 1-4600 Pittsburgh 25, Pennsylvania

Fibre Drum Packs And Dispenses Magnet Wire

Continental Can Company, in conjunction with the Rea Magnet Wire Company has produced a drum that provides a new method for packing, dispensing, storing and shipping magnet wire.

Known as the ReaPak, it is being produced at the Fort Wayne, Indiana plant of the Rea Company under license granted by Continental Can Company. Round magnet wire, heretofore usually shipped on spools



having a capacity of 10 to 80 lbs. per spool, can now be packed in continuous lengths weighing 500 lbs. or more per drum.

ReaPak not only affords better protection for magnet wire in transit, but also effects many other real economies because of scrap reduction, less machine down-time for coil changes, reduced handling charges and increased winding speeds. Presently, production is confined to sizes #22 to #10 A.W.G.

1 1 1

Price Reduction On Magnesium Die Casting Ingot Announced

The Dow Chemical Company has announced a one cent per pound reduction in the base price of AZ91B magnesium die casting ingot, effective November 8, 1954, and in addition is giving a freight allowance at carload rate. The price reduction and freight allowance together amount to approximately two cents, or a 7% decrease.

The new price of 26 cents per pound, including freight allowance at carload rate, is applicable east of the Rocky Mountains. The price will be 27½ cents per pound, freight allowed, in Arizona, California, Idaho, Montana, Nevada, Oregon, Utah and Washington. In the past this alloy was sold at 27 cents per pound f.o.b. Madison, Illinois, without a transportation allowance.

if it's a quantity fractional

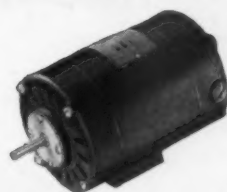
H.P. motor

application

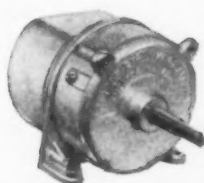
TODAY!

CHECK WITH

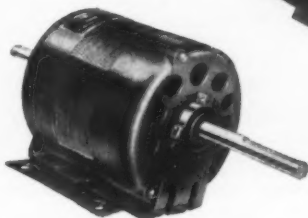
HOWARD



UNIVERSAL & D.C. MOTORS
1/1000 to 1/2 h.p.



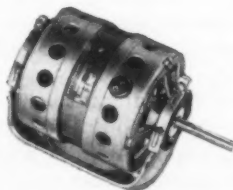
SHADED POLE MOTORS
1/2000 to 1/8 h.p.



The eight Howard motors illustrated here are representative of the wide range of fractional H. P. motors available at Howard.

Currently Howard fractional H. P. motors are serving many of the leading names in industry in hundreds of applications—accounting machines, fans, beacon lights, coin operated devices, dictating machines, facsimile equipment, air conditioners, projectors, tape recorders, power tools, sewing machines and many more. The wide range of H. P. ratings, motor type, frame sizes, speed and torque, voltage and power supply and other important considerations make Howard motors a likely source for your particular requirements.

If you are using or choosing fractional H. P. motors for your products, write or phone (Racine 2-2731) today. Give us your specifications and we will supply a motor to do your job. Please address Chief Sales Engineer.



INDUCTION MOTORS
1/1400 to 1/4 h.p.



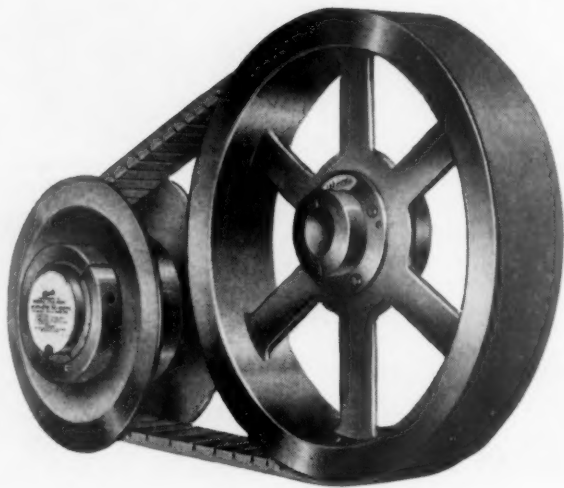
DEPT. P-2 • HOWARD INDUSTRIES, INC. • RACINE, WISCONSIN

SALES OFFICES: 208 S. La Salle St., Chicago 4 • 942 S. La Brea Ave., Los Angeles 36 • Room 4822, Empire State Bldg., New York 1

DIVISIONS: **EMC** ELECTRIC MOTOR CORPORATION  CYCLOHM MOTOR CORPORATION  RACINE ELECTRIC PRODUCTS

For More Information Circle No. 276 on Inquiry Card—Page 17

and now a **NEW** smaller
variable speed drive
has been added



for drives from 1 to 5 hp
speed range ratio up to 2 to 1

Here is a small rugged Variable speed drive made with the same proven construction of Wood's standard variable speed drives.

Just look at these features!

DESIGN — Both flanges move simultaneously by a single adjusting screw to change the pitch diameter.

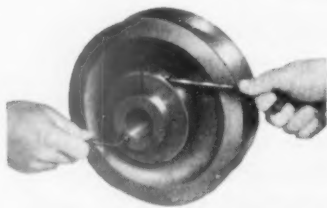
POSITIVE LOCKING — Simplified design provides positive clamping of the two adjustable flanges eliminating fretting corrosion. Flanges are quickly and easily released for making speed changes.

HIGHER EFFICIENCY — Single wide range belt gives maximum HP efficiency. Eliminates problem of maintaining matched belts and matched grooves for equal power distribution.

LESS SHAFT OVERHANG — Single belt design reduces weight and space required.

NO LUBRICATION — No grease fittings or oil cups, therefore, no preventive maintenance needed.

For more detailed information, write to T. B. Wood's Sons Co.



So easy to change speeds. Just loosen both split collars and turn adjusting screw from either side. With the speed chart furnished you can adjust the sheave to the desired speed without trial and error.

Be sure to write for Variable Speed Drive Bulletin #497. Gives complete information on how to design and select variable speed drives from 1 to 20 HP.



T.B.

Wood's

SONS CO. CHAMBERSBURG • PA.

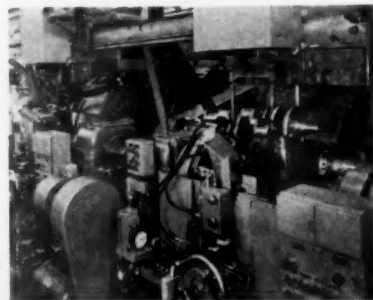
Mechanical Power Transmission Manufacturers Since 1857

Cambridge, Mass., Newark, N.J., Dallas, Tex., Cleveland, O.

For More Information Circle No. 278 on Inquiry Card—Page 17

Automated Crankpin Grinder Does Work of Six Machines

The Norton Company of Worcester, Mass., has developed a transfer type crankshaft grinder which grinds automotive crankpins at the rate of one complete shaft per minute throughout the entire working day. Without human effort, the machine picks up a crankshaft from the conveyor line, locates work in four successive grinding stations, and then places the finished work on another conveyor to carry it to the next operation.



One of the four stations of the Norton transfer type crankpin grinder. Size is controlled by the airsnap gage just below the crank. The crank is accurately located automatically by workholders.

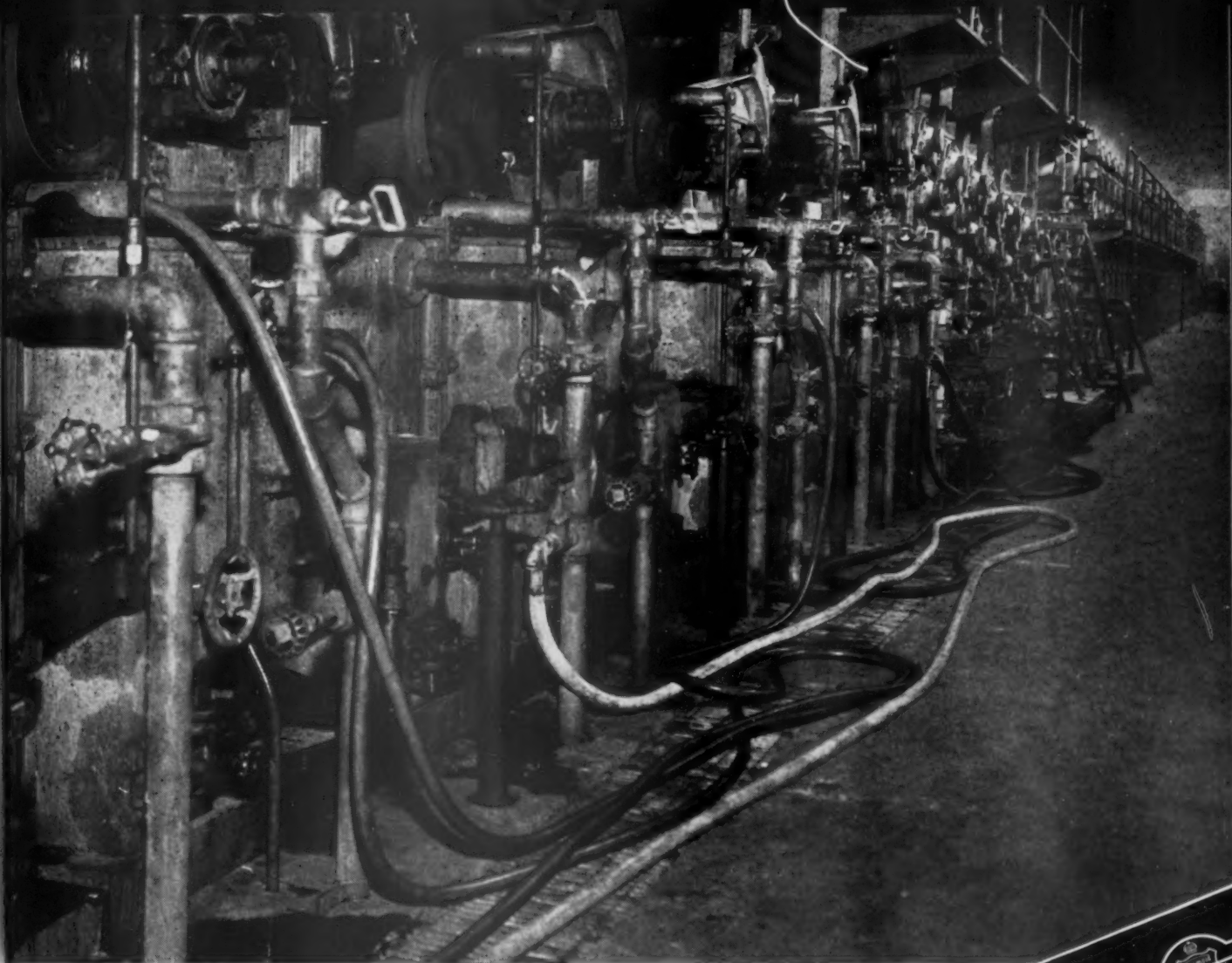
It is estimated that this one machine does the work of six conventional grinders set up for semi-automatic operation. In addition, it occupies less floor space than conventional grinders of equivalent capacity. Four of these machines were sold on the strength of their cost reduction possibilities before the first one was even completed. First installation will be at the Utica, Michigan engine plant of the Studebaker-Packard Corporation.

For grinding V-8 engine shafts with four pins, two base units, each mounting two grinding wheel slides, are required. A transfer unit is mounted over the four grinding stations and cabinets for hydraulic and electric controls are located behind the machine.

In addition to reductions in labor cost, the machine should give much greater grinding wheel life than is obtained on conventional machines. There are two reasons for this. First, automatic wheel truing at every work cycle eliminates the human element in truing which tends to remove too much of the wheel surface in the truing operation. Second, a rigid, cartridge type bearing supporting the grinding wheel spindle at each end helps increase wheel life.

**USE INQUIRY CARD
PAGE 17**

For More Information Circle No. 279
on Inquiry Card—Page 17→
PURCHASING



Thermoid Hose Versatility Cuts Your Costs

The versatility of Thermoid multi-purpose hose makes stocks of many different types unnecessary. You cut your hose cost through reduced inventories, simplified buying and less storage space. Losses from end remnants are greatly reduced.

VERSAFLEX—Excellent for handling air, water or oil under high pressure. Use also for butane, propane and as fire fighting booster hose. Red cover.

VERSICON—Most versatile hose ever offered. Handles air, water, oils, greases, gases and dilute acids. A real inventory-saver! Brown cover.

AQUAIR—Handles air, water, gases where oil is not present. Ideal for oxygen and acetylene welding operations. Tough, yet light and flexible. Green cover.

In addition, Thermoid makes other types of hose for specific applications, such as paint spray, sand blast, dust collecting, etc. Call your Thermoid Distributor. He can help you select the hose best suited for your requirements. Or write direct for our latest catalogs.

Your Thermoid Distributor also carries a complete line of Thermoid Conveyor Belting and Multi-V Belts to meet all your requirements.

VERSAFLEX

VERSICON

AQUAIR



Thermoid

Conveyor & Elevator Belting • Transmission Belting
F.H.P. & Multiple V-Belts • Wrapped & Molded Hose

Rubber Sheet Packings • Molded Products
Industrial Brake Linings and Friction Materials

Thermoid Company • Offices & Factories: Trenton, N. J., Nephi, Utah

Personalities



IN THE NEWS

Elliott B. McGrew has been elected Vice President and Director of Purchases for General Cable Corp., New



E. B. McGrew

York. Mr. McGrew had previously been director of purchases and has been in the purchasing department of the corporation since 1922.

The new Purchasing Agent for Government Operations for CBS-Columbia, the television, radio and electronics apparatus division of the Columbia Broadcasting System, Long Island City, N. Y., is **Harold M. Zimmermann**. In the newly established post, Mr. Zimmermann will report directly to Will James, Director of Operations, who is responsible for all purchasing and manufacturing at CBS-Columbia. Prior to joining CBS, Mr. Zimmermann was in charge of all procurement for engineering products at the Radio Corporation of America.

A. M. McKelligon has been appointed Purchasing Agent for Portland (Ore.) Gas & Coke Co. He replaces **H. H. Stuart**, who becomes Manager of Purchasing and Traffic.

A. O. Degling, formerly general manager of American Can Company's engineering department, has been elected Vice President in Charge of Purchasing and Traffic. Mr. Degling joined the company in 1935 as a structural engineer. In recent years, he had been in charge of Canco's extensive postwar construction program.

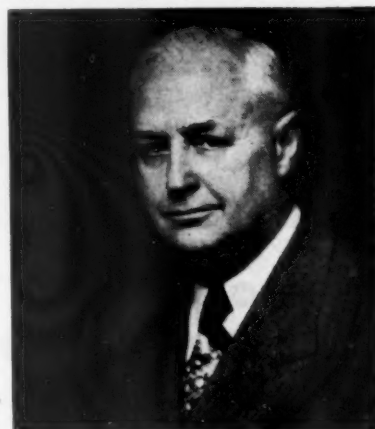
Three promotions in the purchasing department of the Convair Division of General Dynamics Corp., San Diego, Calif., have been announced. **Harold N. May** is now General Purchasing Agent; **W. G. Evans** has been promoted



H. N. May

to Purchasing Agent; and **Edward Fellows, Jr.**, was named Purchasing Services Administrator. Mr. May joined Convair in 1942 in the subcontracts department. After a brief tour of duty as subcontracts general supervisor in the company's Allentown, Pa., division, he returned to San Diego as subcontracts superintendent and later became purchasing agent. Mr. Evans joined the company in 1948, while Mr. Fellows started with Convair in 1954.

S. T. Edgerton, who recently retired from the United States Rubber Company after 23 years as Divisional Pur-



S. T. Edgerton

chasing Agent, has joined the firm of Coy, Hunt & Co., New York, paper wholesalers. Mr. Edgerton, with 35 years experience in the packaging field, will act as a consultant in his new association.

The appointment of **Julius Olchen** as Purchasing Agent of the Truscon Steel Division, Youngstown, Ohio, has been announced by Republic Steel Corp., Cleveland. Mr. Olchen, formerly assistant purchasing agent, succeeds **L. H. Ransom**, who has been transferred to Republic's Cleveland headquarters and named Assistant Manager of Purchases for the entire company. Mr. Olchen joined Truscon as a mail boy and later worked in the hardware, shipping and order departments. After serving as manager of the expediting department, which he organized, Mr. Olchen was manager of the order department from 1936 to 1942. He transferred to the purchasing department in 1942, and became assistant purchasing agent in 1944.

(Please turn to page 250)

POUCHPAK* WON'T BURST



IN 10" VACUUM - UNDER WATER

Tough test for this government beverage powder package is to submerge it in water and apply a 10" vacuum. It bulges like a pillow, but there are no tell-tale air bubbles, no burst seams. The package is made of a special Riegel paper . . . a triple lamination of pouch paper, foil and polyethylene. It's just one more example of Riegel's ability to make paper for almost any need. Over 600 Riegel papers now available. Just tell us what you want paper to do for you. Write to Riegel Paper Corporation, P.O. Box 250, New York 16.

*Trademark

Riegel
SPECIAL PAPERS
for
INDUSTRY

This PAPER will STOP RUST



. . . it's just one of 600 Tailor-Made Riegel Papers

The delicately honed edges of fine razor blades are protected by a little band of paper . . . an unusual Riegel paper that combines rigid strength with easy formability, and that is specially processed to eliminate corrosive salts and sulphur. It's another interesting example of Riegel's ability to make paper for almost any need.

What do you want paper to do for you? Write to: Riegel Paper Corp., P.O. Box 250, New York 16, N. Y.

Riegel
SPECIAL PAPERS
for
INDUSTRY

CAN YOU USE PAPER MADE WITH GLASS?



. . . it's just one of 600 Tailor-Made Riegel Papers

Research engineers developing an atomic air filter required paper made of glass fiber. They knew what they wanted . . . but it was Riegel's job to work out the bugs and make it . . . and we did. Whether or not you can use a paper made with glass, this is a good example of our proven ability to make special industrial papers . . . and make them well. When you need a new paper, or a new source of supply for your present paper, we believe it will pay you to write Riegel Paper Corporation, P. O. Box 250, New York 16, N. Y.

Riegel
SPECIAL PAPERS
for
INDUSTRY



**VARIABLE SPEED DRIVE
LIGHT-HEAVYWEIGHT
CUTS AS YOU WANT IT TO CUT**

The Variable Speed Drive on this **LIGHT-HEAVYWEIGHT 16\"**

A turn of the Hand Wheel does it—sets blade speeds in **stepless variation from 50 to 450 SFM in low range, or 500 to 4500 SFM in high range**—while the machine is running. An indicator shows the exact speed.

No time is lost in belt-changing, no efficiency is lost because of incorrect cutting speeds or an inade-

quate speed range. See this versatile precision-built **LIGHT-HEAVYWEIGHT** at your Walker-Turner Distributor's.

There is much more to the **LIGHT-HEAVYWEIGHT** story that the Walker-Turner Distributor in your area can tell you. You'll find him expert on all industrial equipment and a specialist on **LIGHT-HEAVYWEIGHTS**—a good man to know. He is as near as your phone: just look under **"TOOLS"** in the yellow pages of your local Telephone Directory. Call him today for the helpful information he has to offer.

WALKER-TURNER

• DIVISION •

KEARNEY AND TRECKER CORPORATION
PLAINFIELD, N. J.

DRILL PRESSES — Hand and Power Feed • AIR FEED DRILL PRESS ATTACHMENT • RADIAL DRILLS • Wood and Metal Cutting
BAND SAWS • TILTING ARBOR SAWS • RADIAL SAWS • JIG SAWS • LATHES • SPINDLE SHAPERS •
JOINTERS • BELT AND DISC SURFACERS • FLEXIBLE SHAFT MACHINES

For More Information Circle No. 281 on Inquiry Card—Page 17

D. A. Ferretti is now Purchasing Agent for The International Silver Co., Meriden, Conn. He succeeds Raymond Bingham, who has retired.

The Director of Purchases for the Elgin National Watch Co., Elgin, Ill., **Harold E. Corr**, has been made Assistant to the President. Mr. Corr will handle general administrative duties as



H. E. Corr



W. E. Miller

assigned by the president, as well as over-all supervision of the purchasing department. At the same time, the company announced the promotion of **Willard E. Miller** to the post of Purchasing Agent. Mr. Miller has been assistant purchasing agent since 1951.

The Seamless Rubber Co., New Haven, Conn., has appointed **John E. Coutts** as Purchasing Agent. Mr. Coutts, who has been with the company since



J. E. Coutts

1941, succeeds the late William H. Otersen, Jr. Mr. Coutts first worked in the bookkeeping department of Seamless and has been assistant purchasing agent since 1945.

Russel T. Stark, Director of Purchasing for Burroughs Corp., Detroit, has announced the transfer of **Don E. Wendt** from Detroit purchasing to the post of Assistant Director of Purchasing with headquarters at Burroughs' Research Center in Paoli, Pa. Mr. Wendt joined Burroughs as an errand boy while still in high school in 1929. He became a full-time member of the company in 1936 as a stock clerk, transferring the same year to cost accounting work. In 1948 he joined the purchasing department as a buyer and was promoted to steel buyer in 1950. He was named purchasing agent in 1952.



FLEXIBLE METAL HOSE with "Built-in-Finish" fabricated from Brainard electro-galvanized steel. Brainard coating enhances appearance of product . . . requires no finishing operation.

Brainard electro-galvanized steel eliminates plating and finishing costs

● Products fabricated from Brainard electro-galvanized steel have lasting protection against rust and corrosion . . . yet require no expensive plating or finishing operations. Galvanized coating, an integral part of the steel, is not affected by forming. Brainard galvanized steel can be fabricated by

all standard methods.

Various thickness coatings can be supplied, and coating can be controlled within .0002 of an inch.

Let Brainard quote on your requirements. For free booklet and sample, write Brainard Steel Division, Dept. A-2, Griswold Street, Warren, Ohio.



**COMPLETE STRAPPING SYSTEMS & MATERIALS •
WELDED STEEL TUBING • ELECTRO-GALVANIZED STEEL •
SCAFFOLDING • PALLET RACKS • BUILDING PRODUCTS**

Offices in principal cities throughout the U. S.

42 STOCK SIZES

HALLOWELL
SOLID STEEL
COLLARS



now size-marked for easy identification



Your HALLOWELL distributor now stocks these size-marked precision machined solid steel collars in sizes to fit shafts from $\frac{3}{16}$ " to 3" inclusive. And positive positioning of every HALLOWELL Collar is assured by the famous self-locking UNBRAKO Socket Set Screw—the screw that won't work loose. Write for literature and the name of your nearest HALLOWELL distributor. STANDARD PRESSED STEEL CO., Jenkintown 31, Pa.

HALLOWELL POWER TRANSMISSION DIVISION

SPS

JENKINTOWN PENNSYLVANIA

For More Information Circle No. 283 on Inquiry Card—Page 17

JOLIET



WROUGHT

write for our new catalog
of standard and special
washers for all types of
industrial applications.

WASHER



COMPANY

Moen & Connell Avenues
Joliet, Illinois



For More Information Circle No. 284
on Inquiry Card—Page 17

RAYTHEON

**FIELD
APPLICATION
ENGINEERS**

Excellent opportunities for qualified men to handle sales of electronic equipment and components in our nationwide Equipment Marketing Division. Positions open in several districts.

Sales experience and technical degree or equivalent required. Salary plus commission. Please write giving full particulars concerning education and experience to: Mr. Abbott H. Nile

RAYTHEON MFG. CO.
190 Willow Street
Waltham, Mass.

For More Information Circle No. 285
on Inquiry Card—Page 17

The Aurora Gasoline Co., Detroit, has named **Charles Nannes** as Director of Purchases.

G. A. Johnston has been appointed Purchasing Agent for the San Diego, Calif., plant of Solar Aircraft Co. Mr. Johnston succeeds **R. W. Brick**, who is leaving Solar to become executive secretary-treasurer of the Purchasing



G. A. Johnston

Agents Association of Los Angeles. Mr. Johnston, who has been assistant purchasing agent of the plant, joined Solar in 1950 after service with Convair in San Diego, Lockheed in Burbank, and Vultee in Downey.

William F. Tiernan, Jr., is now Director of Purchases for Catalytic Construction Co., Philadelphia.

Charles F. Sullivan, former mayor of East Brunswick, N. J., has been made Director of Purchase and Property for New Jersey by Governor Robert B. Meyner. He will oversee state purchases totaling more than \$20,000,000 a year, and will be responsible for all state property.

The new Purchasing Manager of the Birds Eye Division of General Foods, White Plains, N. Y., is **Irving Horn**.



I. Horn

Mr. Horn joined General Foods in 1929 as a clerk in the purchasing department and in 1937 became buyer for the Post Cereals Division, Battle Creek, Mich. He became a buyer in the general purchasing department in 1941.

cord life—with **NEW MASTER** portable cord!

Far outlasts *any* other cord made!

Service to cost ratings show new U. S. Royal Master Cord actually gives \$1.88 in value for every cord dollar when compared to the average competitive molded cord!

Two years ago, "U. S." engineers began a *complete reexamination* of portable cord construction, service life, and the causes of cord failure.

Over 10,000 tests were made. More than a thousand cords of all leading makes, including our own famous U. S. Royal Cord, were analyzed, tested, and compared.

Every life factor was considered and carefully evaluated, alone and in its relation to overall cord performance and service life.

Backed by 64 years of experience in the manufacture of electrical wire and cable, U. S. Rubber engineers then translated their findings into an entirely new portable cord, designed to surpass any other previously made.

Extensive tests, both in the laboratory and in outside plant installations have proved this new portable cord startlingly superior in every respect!

New U. S. Royal Master is unquestionably the finest cord you can buy!

From every standpoint, new U. S. Royal Master is a finer, more durable cord — actually gives 88% longer life than the average of other molded cords — far longer than *any* other cord — surpassing even a *hypothetical* cord incorporating the best features of all those tested!

Far greater value, too! In spite of almost doubled service life, this great new cord is in the same price category as other molded cords—giving you \$1.88 in cord value for every cord \$1.00!

Prove to yourself the outstanding superiority of new U. S. Royal Master Portable Cord—in both service life and economy! Write address below for FREE descriptive booklet illustrating the superiority of the U. S. Royal Master Cord. And get in touch with your "U. S." distributor today!

Approved by Underwriters' Laboratories, Inc.

RUBBER COMPANY
ROCKEFELLER CENTER, NEW YORK 20, N. Y.

For More Information Circle No. 287 on Inquiry Card—Page 17

FEBRUARY, 1955

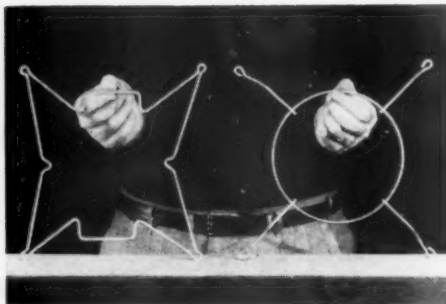
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"Simplicate it... and add more Lightness"

This famous saying by one of America's leading research engineers is the key to much of today's design progress. Sometimes all it takes is the right twist—in Wire. Here are a few specific examples from "Wire Goods Headquarters" . . .

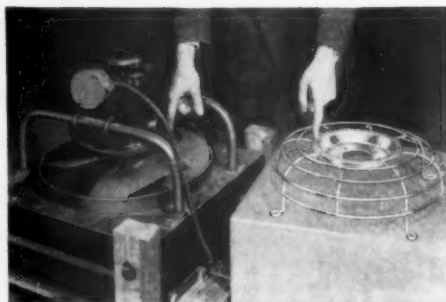
This simple twist saved \$1,530.00 in one year

Manufacturer's wire motor mount design called for 26 bends in a 28"-long wire . . . almost impossible to hold tolerances. Titchener suggested simplified design at right: a ring, 4 support wires, 4 welds—that's all. Estimated saving 10.2c per piece.



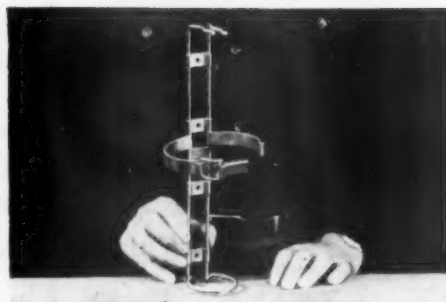
This simple twist saved 75¢ per unit

By combining a motor mount and fan guard in one wire-and-strip assembly, Titchener eliminated expensive pipe frame-work and heavy stampings, reduced noise level, and saved 75c per unit over the former design.



This simple twist cut weight in half

Extinguisher wall bracket redesigned by Titchener eliminates 16 rivets and 3 stampings. Improved design is stronger, more serviceable—weighs half as much—gives substantial savings in manufacturing and material costs.



Wire construction and design assistance by Titchener may be able to solve your cost problem, whatever your product. Our engineers will be glad to help you find out. Merely send prints or samples. No cost or obligation for our analysis and recommendations.

Free Case History Booklet. Shows before-and-after illustrations of 36 products and parts which have been redesigned in wire. Gives specific cost savings and product improvements accomplished. This booklet can be a storehouse of tips and ideas for design and purchasing men.



E.H. Titchener & Co.

92 Clinton St.

Binghamton, N. Y.

For More Information Circle No. 288 on Inquiry Card—Page 17

Dravo Corp., Pittsburgh, has named **Richard Lee Quasey**, a buyer assigned to the Contracting Division, as Assistant Purchasing Agent of the corporation. Mr. Quasey joined Dravo in 1946 and has been an engineer with the Contracting Division until being made a buyer in the division in 1952.

Link-Belt Co., Chicago, has named **Andrew K. Kolar** as Purchasing Agent for its Pershing Road, Chicago, plant. He replaces Henry M. Coen, who has



A. K. Kolar

retired after 45 years with the company. Mr. Kolar joined Link-Belt in 1935 and has served in foundry, steel shop, machine shop, production, sales and engineering at the Pershing Road plant.

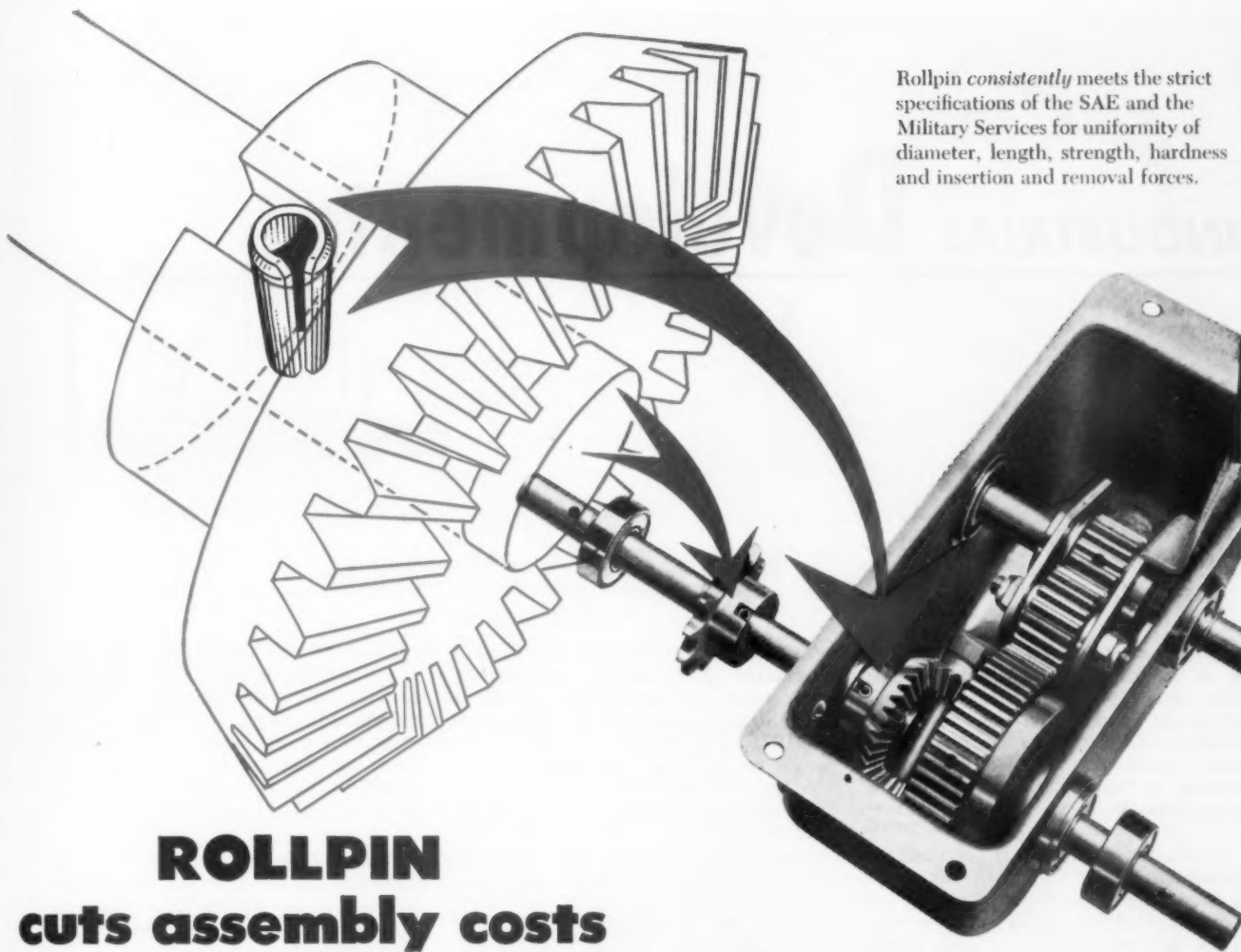
G. C. Noblit, formerly Purchasing Agent of Brockway Glass Co., Brockway, Pa., has been made Director of Purchases for the company. **Fred E. Stewart**, previously Assistant Purchasing Agent, has been promoted to Purchasing Agent.

The promotion of **Robert W. Penman** to Purchasing Agent has been announced by Nor-Lake, Inc., Hudson, Wis. He has served in the firm's engineering and drafting section as a shop engineer before his promotion.

William J. Adams, Assistant Purchasing Agent in New York for Western Electric Co., has been transferred to the Hawthorne, Ill., works as Purchasing Agent.

S. Willard Aker is now Purchasing Agent of the Harder Division, Tyler Refrigeration Corp., Cobleskill, N. Y. He was with the firm from 1920 to 1950, when he joined Strathmore Products Co. in Syracuse.

J. H. Lamb, former operations manager, Cleveland tank plant, has been made Manager of Purchases for Cadillac Motor Car Division, General Motors Corporation, Detroit, Mich. Mr. Lamb succeeds **R. A. Vogel**, who was named GM's Executive in Charge of Procurement and Schedules.



Rollpin consistently meets the strict specifications of the SAE and the Military Services for uniformity of diameter, length, strength, hardness and insertion and removal forces.

ROLLPIN cuts assembly costs on new "acre an hour" power mower

... and solves tough vibration problem!

No extra parts—fewer assembly operations—better performance under vibration! Western Tool & Stamping gained these advantages by switching to Rollpin fasteners for its popular new Homko mower.

WT&S uses Rollpin fasteners in the transmission gear assembly, in the two jackshaft bracket assemblies, and in the extension bar that connects power unit to mower assembly. Why? Because, with Rollpin, there's no precision drilling, threading, or peening. And there's no need for cotter pins or other locking devices.

Rollpin is a slotted, tubular steel spring pin with chamfered ends that drive easily into standard holes, compressing as driven. Its spring action locks it in place despite severe vibration, impact loading, or stress reversals. Rollpin is readily removable and can be re-used in the same hole.

Mail the coupon for information on how Rollpin can do your fastening jobs faster and more economically.



ELASTIC STOP NUT CORPORATION OF AMERICA

Dept. R31-215, Elastic Stop Nut Corporation of America
2330 Vauxhall Road, Union, New Jersey

Please send the following free fastening information:

- ☐ Rollpin samples ☐ Here is a drawing of our product.
☐ Rollpin bulletin What self-locking fastener would you suggest?

Name _____ Title _____

Firm _____

Street _____

City _____ Zone _____ State _____



For More Information Circle No. 289 on Inquiry Card—Page 17

INDUSTRIAL Developments



New plant facilities at Bound Brook, N. J., for the production of Bakelite high-impact polystyrene and the development of new high-impact styrene molding and extrusion materials, has been announced by **Bakelite Co.**, a division of **Union Carbide and Carbon Corp.**, New York.

Production capacity has been nearly doubled at the Philadelphia box plant of **Stone Container Corp.**, Chicago, on completion of its expansion program. A 350-foot long corrugator, that fabricates container board 95 inches wide, plus enlargement of the floor space to an area of 150,000 sq. ft. are partly responsible.

Ton tanks of three types of "Freon" fluorinated hydrocarbon refrigerants and aerosol propellents, made by **E. I. du Pont de Nemours & Co.**, Wilmington, Del., are being stocked in the company's Los Angeles warehouse. Products involved are "Freon-12" dichlorofluoromethane, "Freon-22" monochlorodifluoromethane, "Freon-114" dichlorotetrafluoroethane, as well as aerosol propellant solutions of "Freon-12", "Freon-11" trichloromonofluoromethane and "Freon-114".

Officials of the newly-formed **Ingersoll Conditioned Air Division**, **Borg-Warner Corp.**, Chicago, have announced plans for an immediate and major ex-

pansion of the company's operations in the heating and air conditioning industries. The new division's factory in Kalamazoo, Mich., will produce, for 1955, an entirely new line of gas-fed warm air furnaces from 70,000 btu to 200,000 btu input in high-boy, low-boy, counter-flow and suspended models.

To expand its line of metal processing chemicals, the **Pennsylvania Salt Manufacturing Co.**, Philadelphia, has acquired all patents and assets of the **Gilron Products Co.**, Cleveland.

The **Riverside Metal Co.**, Riverside, N. J., has been purchased by **H. K. Porter Co., Inc.**, New York. **Riverside** manufactures non-ferrous metals in sheet, strip, rod, wire, bar and circle.

As part of its current expansion program, **H & H Tube and Manufacturing Co.**, Detroit, has announced that its services now include the cold fabrication of welded and seamless steel and aluminum tubing.

Federal Pacific Electric Co., Newark, N. J., has acquired the **Gardner Electric Manufacturing Co.**, San Francisco.

The assets and business of **Globe Steel Tubes Co.**, Milwaukee, have been purchased by **The Babcock & Wilcox Co.**, New York. **B & W** will continue to operate the Milwaukee plant as part of its Tubular Products Division.

The corporate name of **Pressed Steel Car Co., Inc.**, New York, has been changed to **U. S. Industries, Inc.**

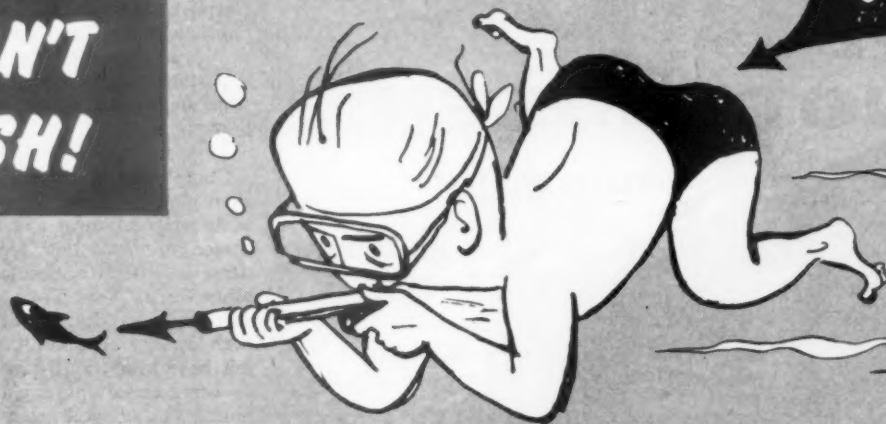
Colson Canada Limited, a wholly-owned subsidiary, has been formed by **The Colson Corp.**, Elyria, Ohio. The company has occupied a 12,000 sq. ft. factory and warehouse in Toronto, Ont.

(Please turn to page 262)



THE NEW DUPLEX milling machine at the Pittsburgh works of **Jones & Laughlin Steel Corp.**, is shown face milling a stack of thirty-two $\frac{1}{4}$ -inch-thick cold rolled flat steel bars. The machine finishes both edges of the flats simultaneously, operating at a table speed of 32 inches per minute.

**DON'T
FISH!**



Ask Your **LYON** Dealer!

• No need to fish around for the best in steel equipment. The Lyon Dealer is your man . . . for two big reasons. First, he offers the world's most diversified line of quality steel equipment . . . more than 1500 standard Lyon items. (A very few shown below.) Second, he can show you how to get the most out of steel equipment in terms of time, space and money. Why

not ask him to stop in with his 76-page catalog—chock-full of equipment and ideas.

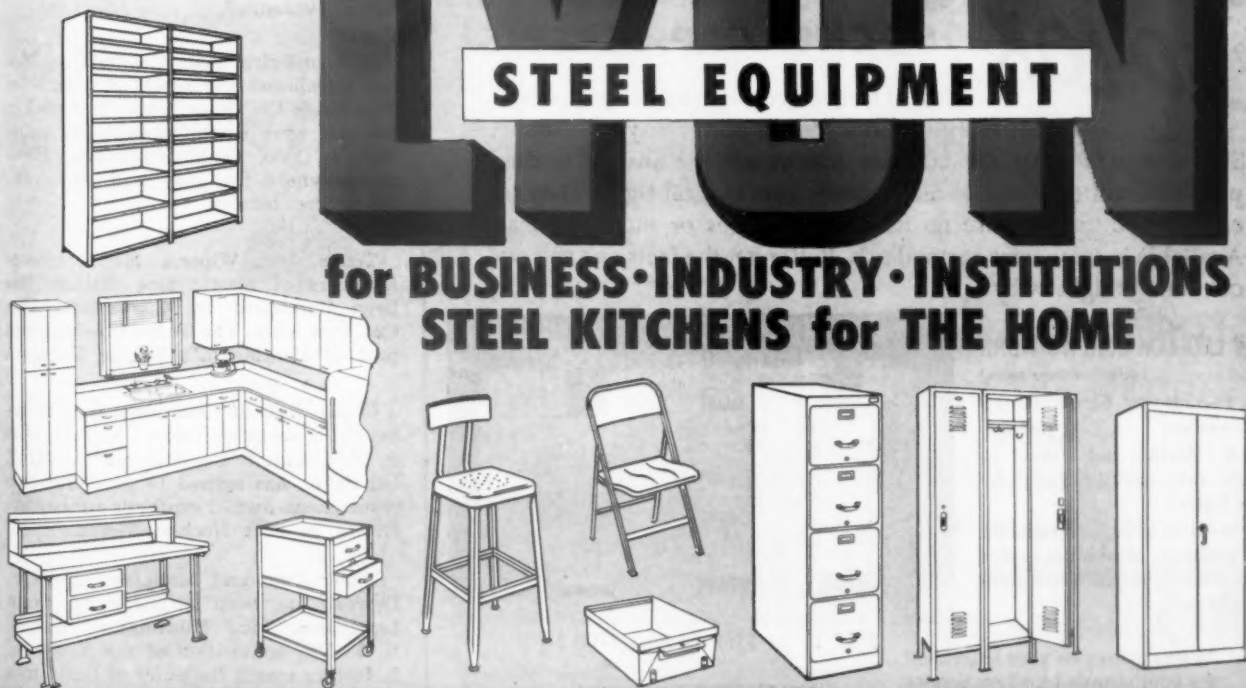
LYON METAL PRODUCTS, INC.
General Offices 233 Monroe Ave., Aurora, Ill.
Factories in Aurora, Ill. and York, Pa.
Dealers and Branches in All Principal Cities.

Lyon also has complete facilities for manufacturing special items to your specifications.

LYON[®]

STEEL EQUIPMENT

for BUSINESS • INDUSTRY • INSTITUTIONS
STEEL KITCHENS for THE HOME



A PARTIAL LIST OF LYON STANDARD PRODUCTS

- Shelving
- Lockers
- Stools
- Bin Units
- Kitchen Cabinets
- Cabinet Benches
- Storage Cabinets
- Drawing Tables
- Tool Toters
- Bar Racks
- Tool Boxes
- Parts Cases
- Economy Locker Racks
- New Freedom Kitchens
- Toolroom Equipment
- Wood Working Benches
- Display Equipment
- Flat Drawer Files
- Revolving Bins
- Hanging Cabinets
- Filing Cabinets
- Folding Chairs
- Work Benches
- Bench Drawers
- Service Carts
- Sorting Files
- Drawer Units
- Hopper Bins
- Tool Stands
- Shop Boxes
- Tool Trays
- Shop Desks

VIBRATION CANNOT LOOSEN!

Patent Applied For



"SECRET" IS THIS TAPER

PLUS...
THIS WASHER!

the NEW

Blue Devil

LED-LOK

SOCKET CAP SCREWS

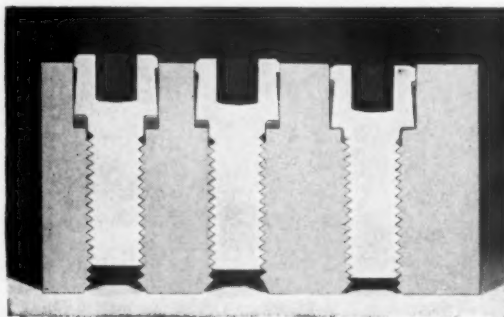
Now at last you can use socket screws that positively will not loosen under any vibration!

The new BLUE DEVIL LED-LOK CAP SCREWS are the answer to this problem, and they're also air-, water-, gas- and oil-tight. They're easy to use and require no assembly changes or modifications. Available in same sizes as standards. Better get the facts on LED-LOK CAP SCREWS right away!

HOW LED-LOK SCREWS WORK

(Actual cutaway photo)

- STEP 1**—LED-LOK Screw drawn up to washer;
- STEP 2**—Washer has started to extrude into cavity formed by screw taper;
- STEP 3**—Screw is seated into final position; washer occupies cavity, locking in place and making tight seal.



STEP 1 STEP 2 STEP 3

SOCKET SCREWS EXCLUSIVELY

WRITE TODAY on your letterhead for your sample LED-Lok Screws and testing block. No obligation!

SAFETY SOCKET SCREW COMPANY

6502 AVONDALE AVENUE • CHICAGO 31, ILLINOIS

SOLD ONLY THROUGH AUTHORIZED INDUSTRIAL DISTRIBUTORS

For More Information Circle No. 293 on Inquiry Card—Page 17

The first and only modern multi-stage bleach plant of its kind in the United States, using chlorine dioxide, is now in operation at St. Marys Kraft Corp., St. Marys, Ga., a subsidiary of Gilman Paper Co., New York. Much of the production of the new bleached kraft paper will go into Gilman's multi-wall bags and other converting departments.

Completion of processing facilities at their Newfield, N. J., plant, for full-scale production of special alloys, processed minerals and ferro alloy powders, has been announced by Shield-alloy Corp., New York. Materials now in regular production at the plant are high quality chromium, tungsten melting base alloy, and special alloys such as titanium-aluminum and zirconium-aluminum, as well as ferro columbium.

Pacific Tube Co., Los Angeles, is undertaking a \$200,000 expansion of their stainless steel tube pickling facilities. It is estimated that the new construction will double Pacific's capacity.

The Dorr Co., Stamford, Conn., and Oliver United Filters Inc., Oakland, Calif., have merged under the name of Dorr-Oliver, Inc. Headquarters of the new firm is at Stamford.

The formation of a new company to manufacture a complete line of cemented tungsten carbide tools and blanks has been announced. Located in Detroit, the firm is called Valenite Metals Corp. and will produce and sell its merchandise under the trade name "Valenite".

Mexico Refractories Co., Mexico, Mo., has purchased the assets of the Niles Fire Brick Co., Niles, Ohio. Included in the sale were extensive property holdings in Ohio, Pennsylvania and Kentucky where fire clay and silica deposits are located.

Tenco, Inc., Winona, Minn., manufacturers of plastic pipe fittings, has been purchased by Continental Can Co., New York. The Tenco line becomes part of Continental's Plastic Division.

Goodrich-Gulf Chemicals, Inc., Pittsburgh, a company owned half by The B. F. Goodrich Co. and half by Gulf Oil Corp., has agreed to purchase two government-owned synthetic rubber facilities in Port Neches, Texas.

Ueber Tool and Manufacturing Co., Detroit, has been acquired by Lunn Laminates, Inc., Huntington Station, N. Y. The acquisition of the 55,000 sq. ft. factory marks the entry of Lunn into the tool and die industry.

A new factory is being built by Leeds & Northrup Co., Philadelphia, at North Wales, Pa. The \$2,750,000 structure will contain 254,000 sq. ft. of floor space.

For More Information Circle No. 294 on Inquiry Card—Page 17—PURCHASING

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*in the
gear industry, it's*

UNION



UNION DISTRIBUTORS

SERVE THE NATION

FOR • SPEED

• ECONOMY

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CALL YOUR UNION DISTRIBUTOR.

UNION TWIST DRILL COMPANY • ATHOL, MASSACHUSETTS

OWNERS AND OPERATORS OF: S. W. CARD MANUFACTURING CO. DIVISION, Mansfield, Mass.

BUTTERFIELD DIVISION, Derby Line, Vermont and Rock Island, Quebec

saw any metal
fast and
efficiently

with **VICTOR**
Hand or Power
Hack Saw Blades
or
Band Saw Blades



**LET YOUR
VICTOR DISTRIBUTOR HELP
YOU PICK THE RIGHT ONE**

Because he's backed up and trained by experienced factory representatives, your VICTOR Distributor is ideally qualified to help you with your metal cutting operations.

Because he carries complete stocks, he can make quick delivery of whatever you need whenever and wherever you want it.

With his guidance, you can pick the *right* VICTOR Blade for the job you have to do...

VICTOR "MOLY"® High Speed Steel — tops for economy and performance.

VICTOR "MOLYFLEX"® — Cuts like a genuine "Moly" but is so flexible it cannot be broken in use.

VICTOR High Speed Steel The power blade that's unexcelled for durability and fast cutting.

VICTOR Unbreakable High Speed Steel — Absolutely shatter-proof, fast cutting, flexible, long lasting.

Sold Only
Through
Recognized
Distributors

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VICTOR

SAW WORKS, INC. • MIDDLETOWN, N. Y., U. S. A.

Makers of Hand and Power Hack Saw Blades;
Frames; Metal & Wood Cutting Band Saw Blades.

For More Information Circle No. 297
on Inquiry Card—Page 17

Enthone, Inc., New Haven, Conn., manufacturers of chemical products for metal finishing, has changed the name of its division formerly known as Conn. Metalcraft, Inc. The new name is Comco, Inc.

Daubert Chemical Company is the new name of Nox-Rust Chemical Corp., Chicago.

Plans to build new jet engine research and development facilities costing more than \$12½ million have been announced by Westinghouse Electric Corp., Pittsburgh. The new facilities, which include both high and low-power laboratories and an experimental engineering shop, will be located at the present site of the jet engine plant south of Kansas City, Mo., which Westinghouse leased from the Navy in 1948.

Production of electrolytic manganese has been started by Electro Metallurgical Co., a division of Union Carbide & Carbon Corp., New York, at its new plant in Marietta, Ohio. The plant will have a capacity of about 6,000 tons per year when all the electrolytic units are in full operation.

An ultra-modern structure housing the basic and applied research laboratories of Pittsburgh Plate Glass Company's paint and brush division has been opened at Springdale, Pa.

The Wayne Crane Division, American Steel Dredge Co., Inc., Fort Wayne, Ind., is now called the Wayne Shovel and Crane Division.

Rotary Lift Co., Memphis, Tenn., manufacturer of industrial and automotive lifts, has acquired a Canadian plant with the purchase of Colville Industries, Ltd., Chatham, Ont.

Supplementing its wirebound, cleated-panel and nailed-wood container designing and manufacturing, The American Box Co., Cleveland, is expanding its facilities to begin corrugated container production at its main plant.

The Sterling Abrasive Division, Cleveland Quarries Co., has changed its name to Sterling Grinding Wheel Co.

Federal Pacific Electric Co. has completed construction of a new warehouse at its Newark, N. J., plant. The warehouse adds 35,000 sq.ft. to the Newark plant.

A 40,000 sq.ft. cemented carbide metals plant has been completed by Wesson Metal Corp., Lexington, Ky. The plant will double Wesson's production capacity.

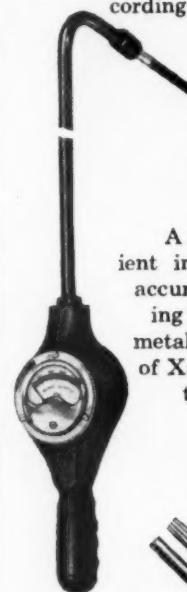
The installation of modern rubber processing equipment for the manufacture of a general line of mechanical rubber goods has been announced by the Dico Co., Des Moines, Iowa.

PRECISION TEMPERATURE measurement and control



**GORDON
XACTLINE**

Controls temperature automatically within a fraction of a degree in any heat process. A complete factory-assembled unit ready for installation anywhere. Can be used with any existing indicating or recording pyrometer controller—regardless of age.



**GORDON
XACTEMP
Hand Pyrometer**

A quality-built, convenient instrument for quick, accurate temperature reading in molten nonferrous metals. Also, other models of Xactemp for all-around temperature checking.



**GORDON
SERV-RITE**

**Thermocouple Wire
Thermocouple Extension Wire**

Insulated in Gordon's own plant to assure consistent quality. All standard wire and insulations carried in stock for quick delivery. Other wires, in long or short runs, manufactured to specifications.

Full Particulars on Request

**GORDON
SERVICE**

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Manufacturers • Engineers • Distributors
Temperature Control Instruments • Thermocouples & Accessories • Industrial Furnaces & Ovens • Metallurgical Testing Machines

619 West 30th Street, Chicago 16, Illinois
2015 Hamilton Avenue, Cleveland 14, Ohio

For More Information Circle No. 298
on Inquiry Card—Page 17

For More Information Circle No. 299
on Inquiry Card—Page 17→
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THESE **MIDWEST**
"LONG TANGENT" ELBOWS
SAVED **\$4121** IN PIPE



**MIDWEST "LONG TANGENT"
ELBOWS COST NO MORE
THAN OTHER ELBOWS**

Here are 1227 Midwest "Long Tangent" Elbows (12", 14" and 16" standard weight) ready for shipment to a chemical plant. Each Midwest "Long Tangent" Elbow has a straight section on each end equal in length to $\frac{1}{4}$ the nominal pipe size. Thus a 12" elbow saves 6" of 12" pipe while a 16" elbow saves 8" of 16" pipe. It doesn't take long to save a lot of pipe and a lot of money . . . in this instance \$4121.

But saving pipe is not the only advantage of Midwest "Long Tangent" Elbows. They often eliminate short nipples and their extra welds . . . save time and money in lining up and clamping pipe and fittings . . . slip-on flanges are more easily applied. For all the facts, write for Catalog 54.

MIDWEST PIPING COMPANY, INC.

Main Office: 1450 South Second Street, St. Louis 4, Mo.

Plants: St. Louis, Passaic, Los Angeles and Boston

Sales Offices

New York 7—50 Church St. • Chicago 3—79 West Monroe St.
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Cleveland 14—616 St. Clair Ave.

STOCKING DISTRIBUTORS IN PRINCIPAL CITIES

MIDWEST WELDING FITTINGS

MIDWEST WELDING FITTINGS Improve Piping Design and Reduce Costs





ALL NEW!

CHESTER ZEPHYR LIGHTWEIGHT HOISTS

**Compact, spur-gear, all-steel
... built for one-man handling
with complete ease and safety**

The new Chester Zephyr Hoists are engineered to give better all-around performance ... made for safe, one-man handling by riggers and millwrights.

Designed, built and tested to exceed standards common to the hoist industry, their fully enclosed and sealed construction makes them more shock resistant and more durable under practically any operating condition.

With the Chester Zephyr's compact and lightweight construction, one man can move it and handle it ... and many close-quarter, minimum headroom operations are possible. Get the greater economy and efficiency in your materials handling offered only by the all-new Chester Zephyr Hoists... write for complete information now.



Ask your distributor for complete information on the new Chester Zephyr Hoists, or write us now for this descriptive specification folder.



•
Chester Zephyr Hoists are available in 1/2, 1, 1 1/2, or 2-ton sizes.

CHESTER HOIST DIVISION
The National Screw & Mfg. Co.
Lisbon, Ohio



Fasteners



Model Chains



Chester Hoists



For More Information Circle No. 300 on Inquiry Card—Page 17

Buffalo Electro-Chemical Co., Inc., and the Becco Sales Corp. have merged with their parent organization, The Food Machinery and Chemical Corp. The new name is Becco Chemical Division.

A new corporation, Markol Metal Products, Inc., has been formed in Rochester, N. Y., to acquire the All-Purpose Metal Equipment Corp., manufacturers of traveling racks, floor racks, whirling racks, desk racks, etc.

The formation of an electronics products division to specialize in subcontract work on military and industrial electronics projects has been announced by Arvin Industries, Inc., Columbus, Ind.

A new plant is being built in Los Angeles, Calif., to house office, warehouse and manufacturing facilities for The Cleveland Crane & Engineering Co., Wickliffe, Ohio. It will be occupied jointly by Cleveland Crane and its California Tramrail distributor, General Conveyor, Inc.

Portland, Ore., is the construction site of a new 30,000 sq.ft. saw manufacturing plant being built by R. Hoe & Co., Inc., New York. The new factory will provide twice the production capacity of Hoe's present rented Portland unit. The plant will turn out band, chisel-tooth and solid saws as well as handle repair work on all types.

Atlantic Steel Co., Atlanta, Ga., is nearing completion of work which will increase its warehouse division facilities by 50 per cent. A new bay, scheduled for completion before June, will add 37,800 sq.ft. to the existing warehouse. It will be used primarily to store heavy structural steel. The structure, together with overhead cranes and other equipment, will cost nearly \$275,000.

Peerless Electric Co., Warren, Ohio, has purchased the physical assets of the Sherman Electric Co., Inc., also of Warren.

Huck Mfg. Co., Detroit, has acquired an additional 46,000 sq.ft. building to house expanded production and research equipment. The production of Conical Keystone Lock Blind Rivets now approximates 10,000,000 per month.

In an unusual suit brought by the 60-year old Peerless Electric Co., Warren, Ohio, against Peerless Electric, Inc., New York, the New York firm has been permanently restrained from using the name Peerless Electric, Inc.

The Anaheim, Calif., Division of Robertshaw - Fulton Controls Co., Greensburg, Pa., producer of intricate components for aircraft and guided missiles, is now known as the Aeronautical Division.

Available...

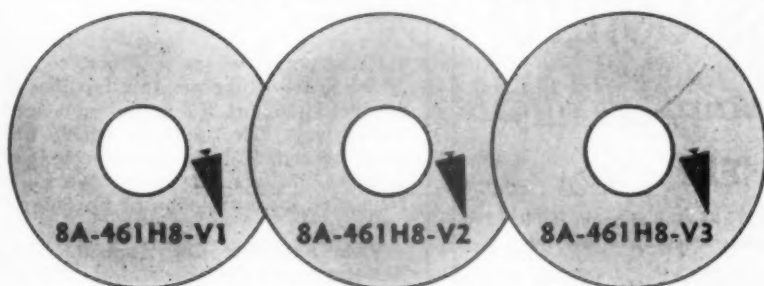
TWO EXTRA OPPORTUNITIES!

For each single hardness grade standard in the industry for precision grinding, BAY STATE makes *three* grade divisions. These "Fractional Grades" provide you with two *extra* opportunities to get a closer "fit" of vitrified bonded wheels for your grinding operations.

This extra refinement is standard at BAY STATE. Such close control, developed through advanced manufacturing techniques, means that BAY STATE does a *better* job of duplicating successful wheel specifications.

For improved precision grinding, get the *extra* benefits of "Fractional Grades" . . . with BAY STATE "WHEELS OF PROGRESS".

HERE'S PROGRESS IN GRINDING



(a) FRACTIONAL GRADES

(b)

The three wheels above vary only in hardness. The middle one, with the figure 2 marked by the arrow, has an exact hardness of grade H. It is flanked by the two *extra* grade divisions you can get from BAY STATE:

- (a) 1 means 1/3 *softer* in grade H.
- (b) 3 means 1/3 *harder* in grade H.

Such extra, *standard* specifications mean progress in grinding for you . . . from BAY STATE.



BAY STATE ABRASIVE PRODUCTS CO., Westboro, Massachusetts, U. S. A.

Branch Offices and Warehouses — Chicago, Cleveland, Detroit, Pittsburgh
Distributors — All principal cities

In Canada: Bay State Abrasive Products Co. (Canada) Ltd., Brantford, Ont.

For More Information Circle No. 302 on Inquiry Card—Page 17

SPEED PRODUCTION

ELIMINATE DELAYS with Quick Acting JOHNSON Furnaces

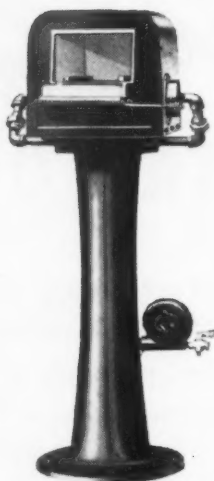
Heat treat high speed steels
Harden high carbon steels
Brazed carbide tipped tools

JOHNSON No. 120 Hi-Speed

Heat treat tools, dies and small metal parts in your own plant. Quick Acting JOHNSON No. 120 Hi-speed delivers 1500° F. in 5 minutes, reaches 2300° F. in 30 minutes. Gets the job done fast to save time and gas. Temperatures easily regulated with accuracy. Firebox 5 x 7¾ x 13½. Complete with Carbofrax Hearth, G. E. Motor and Johnson Blower.

\$155.50 F. O. B. Factory

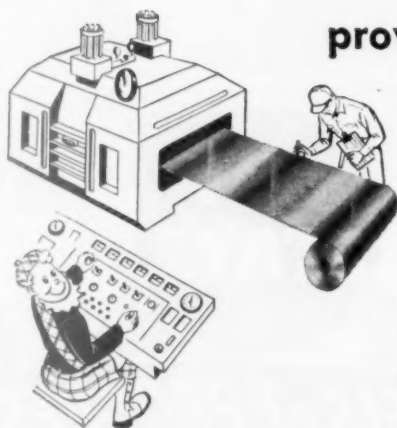
There is a Quick Acting JOHNSON Unit for every toolroom and shop. Write for complete catalog. Johnson Gas Appliance Company, 603 E Avenue N. W., Cedar Rapids, Iowa



JOHNSON Since 1901
FURNACES FOR INDUSTRY

For More Information Circle No. 303 on Inquiry Card—Page 17

MicroRold®
Stainless Steel



"Thinness Control"

provides strip *Quality*
in SHEET *Sizes*

Remarkable uniformity of gauge in MicroRold Stainless Sheets up to 36" wide.

The "Thinness Control" used in the manufacture of light gauge MicroRold Stainless Sheets assures you of the same dimensional accuracy as in strip stainless. Specified gauge thicknesses may be rolled in sheet sizes with tolerances as low as 3% average (plus or minus) as compared to the A.I.S.I. allowable of plus or minus 10%. This results not only in weight savings but also in fabricating economies.

Regular use of MicroRold Sheet can give you more stainless area per ton or the equivalent area with lesser weight.

MicroRold Stainless Steel Sheets are available up to 36" wide and in gauges from .005 in commercial grades, finishes and temper.

Ask your steel warehouse distributor for MicroRold with "Thinness Control"

Washington Steel Corporation
Washington, Pennsylvania



For More Information Circle No. 304 on Inquiry Card—Page 17

The Krafcio Container Corp., Dallas, Texas, has formerly opened its major corrugated box facility in Chicago, Ill. Called Krafcio of Illinois, the plant has 50,000 sq.ft. of floor space.

The Belgian Electric Sales Corp., New York, has changed its name to Acec Electric Corp.

American Potash & Chemical Corp., Los Angeles, is constructing a plant for the manufacture of lithium chemicals near San Antonio, Texas. It will be owned by a newly-formed company, American Lithium Chemicals, Inc., and will be supplied with lithium ore from Southern Rhodesia, Africa, by Bikita Minerals (Private) Ltd. Initial production will be lithium hydroxide.

Yale Rubber Mfg. Co., Sandusky, Mich., has completed a 9,000 sq. ft. addition to its present 85,000 sq. ft. plant. The new facility will house additional laboratories for quality control of manufacturing processes as well as new mills and extruders recently installed as part of an expanded extruded and spliced goods department.

Vitramon, Inc., has moved to its new plant in Long Hill, Conn., a suburb of Bridgeport. The new building provides double the floor space and is expected to triple the production capacity of the manufacturer of ceramic capacitors.

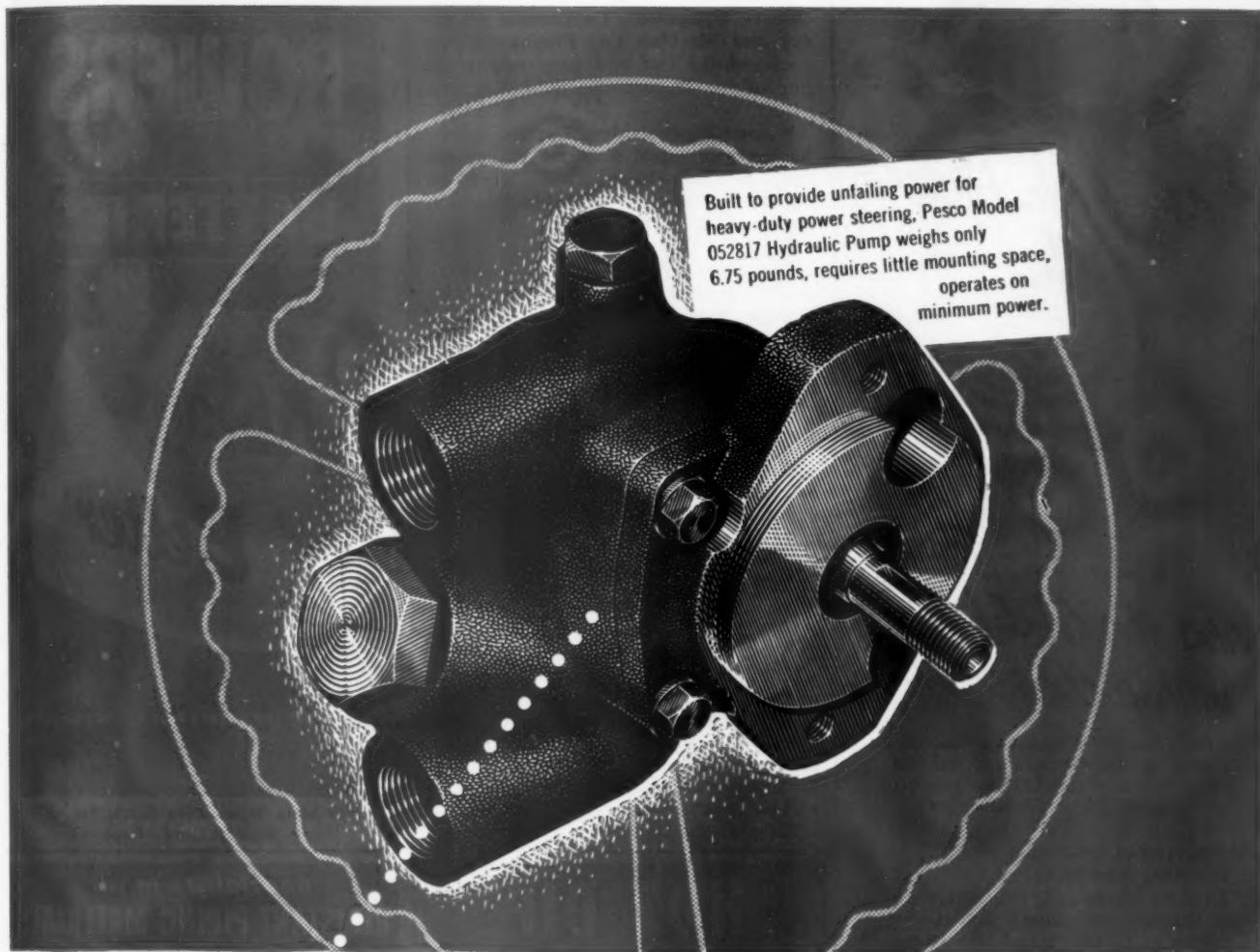
The Hitchiner Mfg. Co., Milford, N. H., has completed a plant expansion program which is expected to increase production capacity by 50%. An increase in the plant floor area has made it possible to enlarge the company's die making department.

Construction of an addition to the stainless steel tube pickling facilities of Pacific Tube Co., Los Angeles, is well under way. The addition, which will cost nearly \$200,000 is expected to double Pacific's capacity. Work is scheduled for completion by February.

Vista Furniture Co., Anaheim, Cal., has purchased the Costa Mesta Furniture Co., manufacturers of modern office equipment. It will be operated as an affiliate of Vista.

A new 139,000 sq. ft. plant devoted to heat treating, plating and plastic molding operations has been opened in Endicott, N. Y., by International Business Machines Corp., New York. The new facility will handle more than 40,000 different parts used in IBM electric accounting machines, electronic "brains" and time recording instruments.

New finishing facilities for producing oil country tubular products in the high strength necessary for deep drilling are now in operation at the Aliquippa Works of Jones & Laughlin Steel Corp., Pittsburgh. The new structure, called the Seamless Tube Specialties Department, cost \$4,700,000.



Built to provide unfailing power for heavy-duty power steering, Pesco Model 052817 Hydraulic Pump weighs only 6.75 pounds, requires little mounting space, operates on minimum power.

Better steering starts here!

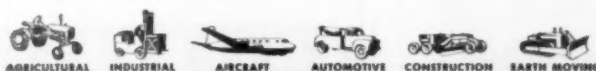
Improved power steering for all types of heavy-duty vehicles, both over-the-road and off-the-road units, starts with Pesco's Hydraulic Steering Pump. On trucks, tractors and construction equipment, this Pesco-designed pump provides unfaltering hydraulic power regardless of operating conditions.

This engine-driven, positive-displacement gear pump features: (1) "Pressure loaded" bearings which automatically adjust for wear assuring sustained new pump performance, (2) minimum power requirements, (3) minimum size and weight, (4) self-lubrication by fluid pumped and (5) a standard pressure relief setting of 750 psi. Operating at 750 psi and

750 rpm, it delivers 3.0 gallons per minute.

Pesco creative engineering produced this pump—and it can produce a pump designed for your exact needs. The experience and "know-how" of Pesco engineers may produce a better and more profitable answer to your hydraulic power problem. This engineering service is available to you . . . and we think you will like the results you get.

Pesco engineers will be glad to supply complete technical information. Operating models are available for testing on your equipment. Call or write: PESCO, 24700 North Miles Road, Bedford, Ohio.



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New booklet tells how a bad spill
(and a glib Gremlin) introduced
Mr. Higby to the LEGGE System of
Safety Floor Maintenance

Maybe you've never met
a Gremlin, head-on.

Even so you'll want to chuckle your
way through "Mr. Higby and the
Gremlin". It's our brand new 16-page
booklet, loaded with important facts
about your floors and their upkeep.
It is colorfully illustrated,
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Learn how you can eliminate
wasteful maintenance practice; cut your
costs for materials and labor way down;
prevent slip-accidents and the
law suits that follow.

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"Mr. Higby and the Gremlin".
Absolutely FREE. No obligation at all.
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Branch offices in
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J. W. Turner Co.
Just clip this
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Gentlemen:

Send me your new Free booklet,
"Mr. Higby and the Gremlin".

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Firm _____

Street _____

City _____ Zone _____ State _____

For More Information Circle No. 308
on Inquiry Card—Page 17

To supplement its line of steel ma-
chinery equipment, **Continental Foun-
dry and Machine Co., Pittsburgh**, has
acquired the bar and tube machinery
line of the Medart Co., St. Louis, Mo.

Wagner Brothers, Inc., Detroit, manu-
facturers of metal finishing equipment
and supplies, have consolidated all
equipment manufacturing facilities in
a new plant at 7800 Dix Rd.

The Shasta Box Company in north-
ern California has been acquired by
**United States Plywood Corp., New
York**. The acquisition includes sawmills
at Douglas City and Redding, a box
plant and planing mill at Redding, and
Shasta Box's timber in the Douglas
City area.

**Wolverine Tube, division of Calumet
& Hecla, Inc., Detroit**, has a new mill
depot in Dallas, Texas. The depot will
stock Wolverine seamless non-ferrous
copper water tube, automotive tube
and refrigeration tube.

**Gaylord Container Corp., St. Louis,
Mo.**, has announced two phases of its
building program. Scheduled for com-
pletion this month is the new box
manufacturing plant in Miami, Fla. The
other operation, a box converting plant
in San Antonio, Texas, is scheduled
for completion by July. The Texas plant
will corrugate, print, slot and fold con-
tainers of many types.

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... EXCELLENT FACILITIES
for PICKLING & OILING

Our Record: Over 50 years of
progressive galvanizing service
to manufacturers and fabrica-
tors of iron and steel products
... any size or shape, any size
order from the smallest to the
largest. Excellent facilities for
pickling and oiling.

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GALVANIZE AT
ENTERPRISE"

**ENTERPRISE
GALVANIZING CO.**

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PHILADELPHIA 25, PENNSYLVANIA

For More Information Circle No. 349
on Inquiry Card—Page 17

BOWERS

BATTERIES

Always
Better

BOWERS BATTERY & SPARK PLUG CO., READING, PA.

For More Information Circle No. 309
on Inquiry Card—Page 17

Specialists in all
RESISTANT PIPING MATERIALS
to your specifications



Exclusive
National Sales
Agents for

American Hard Rubber Co's.
ACE PARIAN
(Polyethylene Plastic)
CHEMICAL PIPING

Perfect combination — Ray Miller's
knowledge of corrosion-resistant prod-
ucts and American Hard Rubber
Company's century of experience! Ace
Parian is a tough, odorless, non-
toxic Polyethylene compound—light
weight and excellent impact strength
even at sub-zero temperatures. Rigid
piping 1/2" to 2"; large line of fit-
tings and valves specifically designed
to meet the requirements of the
paper, pharmaceutical, food, bever-
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Territories Available for Distributors and
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RAY MILLER CO.

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For More Information Circle No. 310
on Inquiry Card—Page 17



DON'T LET THE BIG ONES SCARE YOU!

- ➔ **1¼" and 1½" diameters**
Standard and from stock
in all listed lengths!
Individually packaged
- ➔ **Up to 3" in diameter in any
length you want. Blanks for
these big babies *Right in Stock!***

(or the small ones either!)

HOLO-KROME
Completely Cold Forged
SOCKET SCREWS

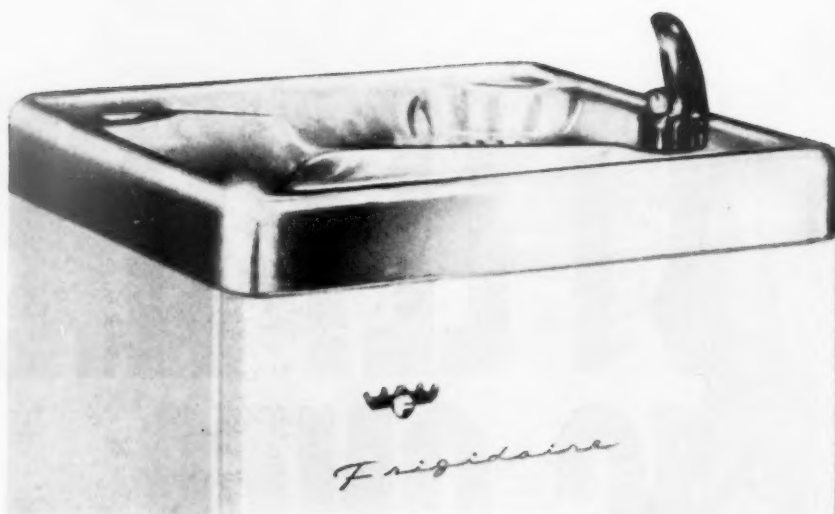
Always quickly available
through HOLO-KROME
Authorized Industrial Distributors

THE HOLO-KROME SCREW CORP. • HARTFORD 10, CONN., U. S. A.

For More Information Circle No. 313 on Inquiry Card—Page 17

FEBRUARY, 1955

279



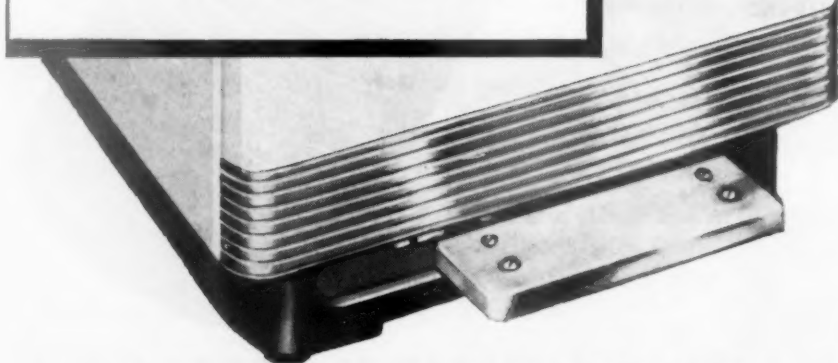
New Frigidaire Water Coolers
Cool water for
pennies a day—
the trouble-free way

Cold water flows in instant response to the all-electric Toe-touch Pedal. Flash-O-Matic principle wastes no water—wastes no electricity. Magic Action Bubbler never fades or surges—built-in automatic regulator holds uniform stream height even when water pressure varies from 25 to 150 lbs. Stainless steel (or porcelain) top with exclusive Splash-proof basin.

Two bottle-type coolers are also available—one model with refrigerated compartment provides two Quickube Ice Trays plus room for quart bottles or 36 soft drinks. And Frigidaire's complete water cooler line includes a new "explosion-proof" model for use in hazardous areas. All are powered by Meter-Miser Compressor warranted for five years. Call your Frigidaire Commercial Dealer or write: Frigidaire, Dayton 1, Ohio. In Canada, Toronto 13, Ontario.

Frigidaire Water Coolers

BUILT AND BACKED BY GENERAL MOTORS



For More Information Circle No. 314 on Inquiry Card—Page 17

The assets of Republic Gear Co., Detroit, and its wholly owned subsidiaries, Detroit Bevel Gear Co. and Almetal Universal Joint Co. of Cleveland have been acquired by Gear Grinding Machine Co., Detroit.

The West Coast operations of Quaker Rubber Corp., Philadelphia, and its recent acquisition, Pioneer Rubber Mills, Pittsburg, Calif., have been merged under the name, Quaker Pioneer Rubber Mills, Division of H. K. Porter Co., Inc.

A hot rolling mill which, for the first time makes possible the production of strip, rods and bars on one combined mill layout, has been put into operation by Carpenter Steel Co., Reading Pa.

The Foxboro Co., Foxboro, Mass., has opened a new instrument service and assembly building in San Leandro, Calif. The factory has doubled the company's West Coast manufacturing facilities, providing 8,400 sq. ft. of space for the service, production and sales departments.

The metal bonding adhesives formerly manufactured by the ChemoTec Division of Eutectic Welding Alloys Corp., Flushing, N. Y., are now being made, sold and serviced by the Adhesive Division, Polymer Industries, Inc., Springdale, Conn.

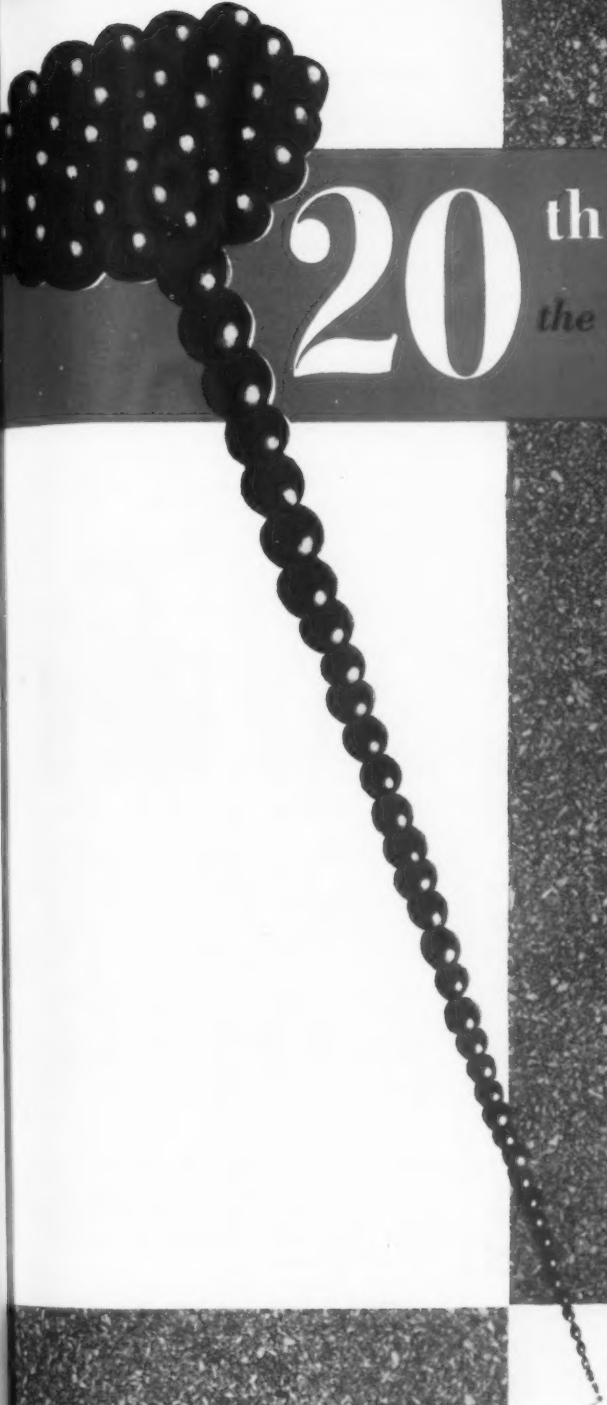
Giant extrusion presses, capable of "squeezing out" the largest extruded aluminum shapes in the world, are being installed in the heavy press building now under construction in Torrance, Calif., by Harvey Aluminum. The presses will be 12,000 and 8,000 ton jobs. Construction is scheduled for completion during the first quarter of 1955, with production set for mid-1955.

The Fyr-Fyter Co., Dayton, Ohio, manufacturer of fire extinguishers, nozzles, hose couplings, etc., has purchased the inventories, dies, tools, trade names, copyrights, etc., of the SAFA (Superior American Fire Alarm) Division of Revere Corp. of America, Meriden, Conn.

The Kittell-Hammond Co., Warren, Pa., has been formed to design and construct noise reduction facilities for installation east of the Mississippi River. The new firm is composed of Hammond Iron Works, Warren, Pa.; Kittell Muffler and Engineering Co., Los Angeles; and the Lacey Mfg. Co., Los Angeles.

Plans for the construction of a new plant in LaVerne, Calif., have been announced by Mercast Corp., New York. The building will be on a recently purchased site, on the Santa Fe main line, and will total 12,500 sq. ft. The facilities are expected to be in full operation in early 1955.

For More Information Circle No. 315 on Inquiry Card—Page 17→



20th Century

the persuasive abrasive

PINPOINT your thinking about metallic abrasives:

1. Look for a *tough*, long-wearing abrasive.
2. Keep a close eye on its *uniformity*.
3. Insist on *quality*.

You'll find our 20th Century *Normalized, the persuasive abrasive, will meet all these requirements *and* give you greater production efficiency and economy.

Write for our new catalog No. 1153.

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*One of the world's largest producers of quality shot, grit
and powder — Hard Iron — Malleable (*Normalized) —
Cut Wire — Cast Steel (Realsteel)*

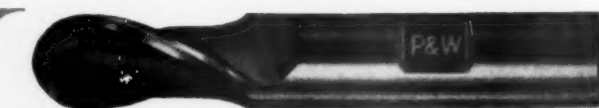
*Copyrighted trade name



All these 1/2" diameter **HI-HELIX END MILLS**

Available **FROM STOCK** at **STANDARD PRICES**

**TWO
FLUTE**



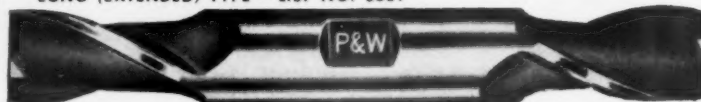
BALL NOSE TYPE — LIST NO. 360



REGULAR TYPE — LIST NO. 356



LONG (EXTENDED) TYPE — LIST NO. 3561



DOUBLE END TYPE — LIST NO. 357

**FOUR
FLUTE**



REGULAR TYPE — LIST NO. 358



LONG TYPE — LIST NO. 3581



EXTRA LONG TYPE — LIST NO. 3582



DOUBLE END TYPE — LIST NO. 359

Four Flute Styles are available in Two End Tooth Designs



Cut-To-Center-Hole Type
Preferred for milling operations requiring radii on the end teeth.



Cupped Type
Preferred for all general milling operations.

FOR COMPLETE INFORMATION write on your Company letter-head for Circular No. 534.

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DIVISION NILES-BEMENT-POND COMPANY

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First Choice  *for Accuracy*

BRANCH OFFICES AND STOCK
CINCINNATI • CLEVELAND • DALLAS (The Stanco Co.) • BOSTON • CHICAGO
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ROCHESTER • SAN FRANCISCO • ST. LOUIS • EXPORT DEPT., WEST HARTFORD

MACHINE TOOLS • CUTTING TOOLS • GAGES

*OFFICE ONLY

NEWS OF YOUR SUPPLIERS

Speer Carbon Co., St. Marys, Pa., has named Edward W. Butler as vice president in charge of sales. Mr. Butler formerly was with International Telephone and Telegraph Co.

Ralph W. Moss is now sales manager of **Haskel Engineering and Supply Co., Glendale, Calif.**

Strong, Carlisle and Hammond Co., Cleveland, is now an authorized distributor for all products of **Boston Gear Works, Quincy, Mass.**



R. W. de Weese



J. J. Davis

Electrical Steel Foundry Co., Portland, Ore., has named R. W. de Weese as vice president in charge of sales, and Jefferson J. Davis as vice president in charge of product divisions.

M. S. Pancoast will represent the Metal Processing Department of **Pennsylvania Salt Mfg. Co., Philadelphia,** in its New York territory.

Snap-Tite, Union City, Pa., has named Norman Engineering Co., Chicago, as a representative. Norman Engineering will cover northern Illinois, northern Indiana, three counties in Michigan, Iowa, Minnesota, Wisconsin and the city of Chicago.

Donald J. Gray has been named vice president and general manager of the **Masonite Corp., Chicago.** Mr. Gray came up to his present position through the purchasing department. Formerly assistant purchasing agent for The Chicago Tribune, he joined Masonite in 1950 as purchasing agent at Chicago. Two years later he was promoted to director of purchases for the entire organization. In 1953 he became assistant manager of Masonite's Laurel, Miss., plant in addition to his purchasing activities.

The new sales manager of the **Michigan Oven Co., Detroit,** is LeRoy M. Gill.

The reassignment of territories for three sales representatives has been announced by **Thomas & Betts Co., Elizabeth, N. J.** Joseph Scholl has been transferred from the Allentown, Pa., area to Baltimore, Md. Eugene W. McCrane goes from Albany, N. Y., to Boston, and George Manahan moves from Boston to Albany.

For More Information Circle No. 316
—on Inquiry Card—Page 17

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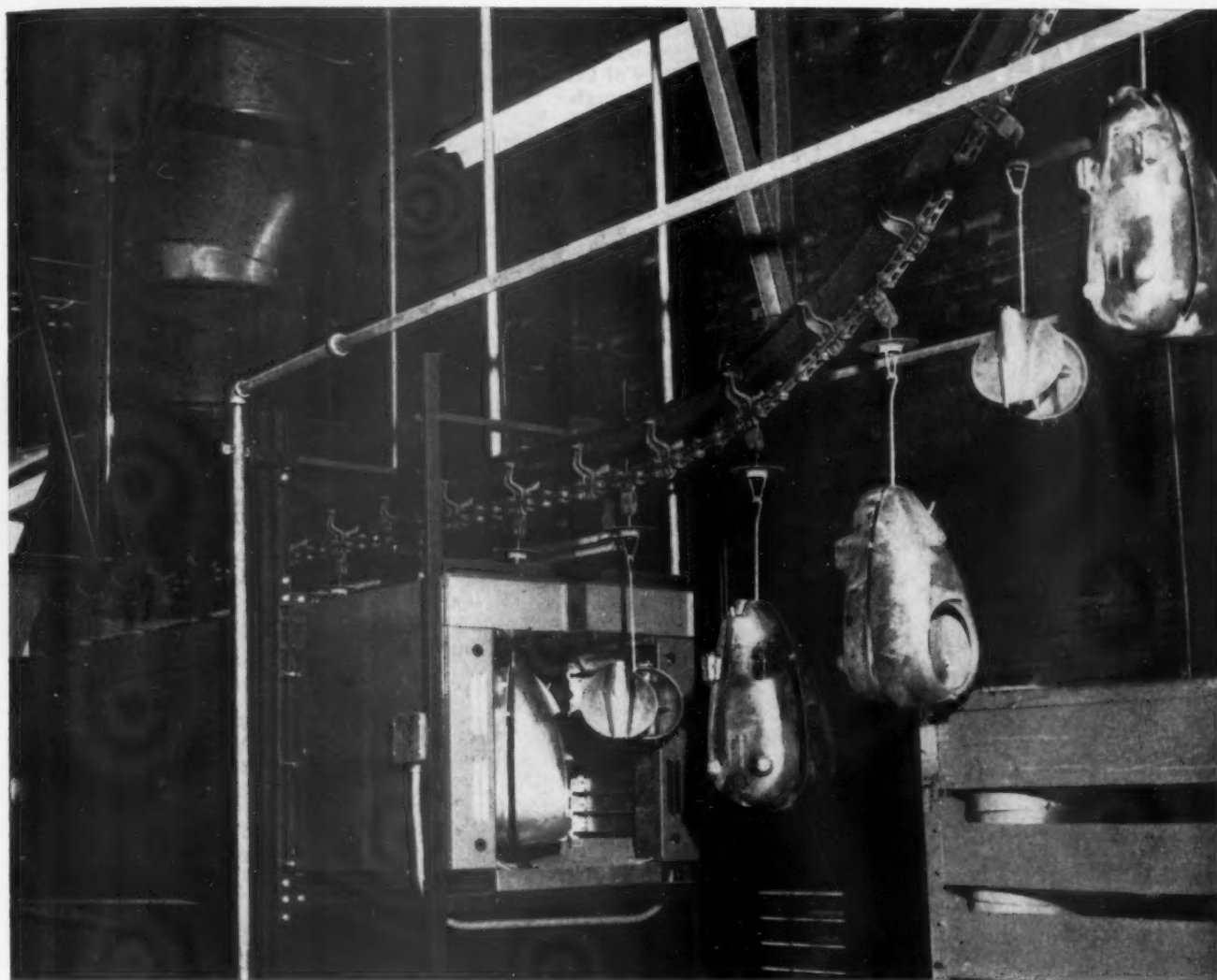
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6

HASING



radiant pre-heating before painting reduces baking time to only 6 minutes

To speed up and modernize wrinkle finishing of vacuum cleaner parts, this company required a continuous assembly line production . . . with no stops or slow downs for degreasing, drying, spraying or baking.

Chromalox automatically controlled electric heat solved the problem right down the production line. Heating elements to heat the degreaser . . . far-infrared radiant heaters to pre-heat the work *before* painting . . . heating elements to heat the paint before spraying . . . far-infrared radiant heaters to rapid bake the finish.

Results are automatic, constant production speed . . . uniformly cured finish . . . and a reduction in baking time from a pre-calculated 20-minute period to an actual 6-minute period.

This problem-solution-result approach has enabled us to help many manufacturers produce better, faster, at lower cost.

Always available to you are our research, engineering, design and modern manufacturing facilities. The world's largest factory stock of industrial heaters plus local stocks at strategic points. And a 33-city nationwide sales and application service.

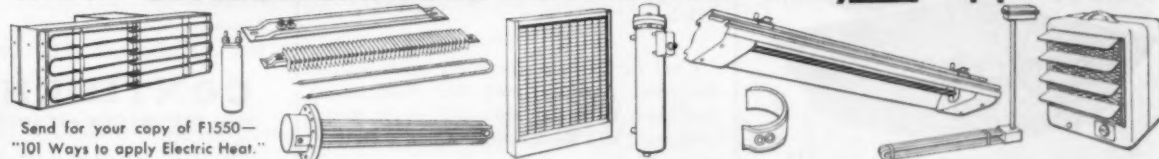
Let us know your problem for controlled heat and we'll go all out to help you find the right answer—electrically.

EDWIN L. WIEGAND COMPANY

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check **CHROMALOX** electric heat for your application



Send for your copy of F1550—
"101 Ways to apply Electric Heat."

For More Information Circle No. 317 on Inquiry Card—Page 17

FEBRUARY, 1955

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OF
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Let Texlite solve
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for so many of the nation's lead-
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needs . . . 10 . . . 100 . . . 1,000 . .
or more? Texlite has the nation's
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signs of porcelain enamel or
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FABRICATION • ERECTION
MAINTENANCE**

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Offices in:

New York, Chicago,
Los Angeles, Houston,
Atlanta, Denver,
Tulsa

Manufacturers of quality porcelain
enamel and plastic signs for
national firms.

For More Information Circle No. 318
on Inquiry Card—Page 17

John C. Geary has been made a special sales representative in the New England territory of Crucible Steel Co. of America, Pittsburgh.

MacDermid Inc., Waterbury, Conn., has named Walter J. Dyber as technical sales representative. He will cover Winsted, Torrington, Springfield, Holyoke and northern New York state.

William G. McDaniel, formerly a sales engineer in Houston, Texas, office of The Foxboro Co., Foxboro, Mass., has been made manager of the company's branch in Corpus Christie.

J. N. Mager has been made manager of roll sales by United Engineering and Foundry Co., Pittsburgh.

Star Expansion Bolt Co., Inc., New York, has announced the appointment of Harry Fox as vice president in charge of sales.

Aaron Ferer & Sons, Inc., Los Angeles, has been made a California distributor by Reynolds Metals Co., Louisville, Ky.

George W. Staiger has been made a representative for Weldaloy Products Co., E. Detroit, Mich. He will headquarter in Cleveland and will cover Ohio and western Pennsylvania.

The James A. Setchell Co. has been named to handle the Arizona sales and services of motors and generators of the Electro Dynamic Division, General Dynamics Corp., Bayonne, N. J.

Flexonics Corp., Maywood, Ill., has appointed E. L. Hiter as sales manager for the firm's Expansion Joint Division.

The Weldrod Co., Meadowbrook, Pa., will represent Birdsell Mfg. Co., Inc., Palo Alto, Calif., in Pennsylvania, New York, New Jersey and Connecticut.

David E. Perkins is now New England sales representative for the Harrison Abrasive Division, Metals Disintegrating Co., Inc., Elizabeth, N. J.

John M. Tuthill, assistant general manager of sales for Youngstown Sheet and Tube Co., Youngstown, Ohio, has been appointed general manager of sales. He will transfer from the firm's Chicago offices to the Youngstown headquarters. John P. De Hetre will move to Chicago to succeed Mr. Tuthill as assistant general manager of sales.

C. W. Snider has been appointed an assistant to the director of sales of Gar Wood Industries, Inc., Wayne, Mich.

Carl A. Carlsen, formerly with Scandinavian Airlines and Air Associates, Inc., has been appointed aircraft sales manager of Resistoflex Corp., Belleville, N. J.



With 5 plants and 19 offices, Milford is "next-door neighbor" to everyone who uses tubular rivets. That means fast deliveries, prompt service and top quality!

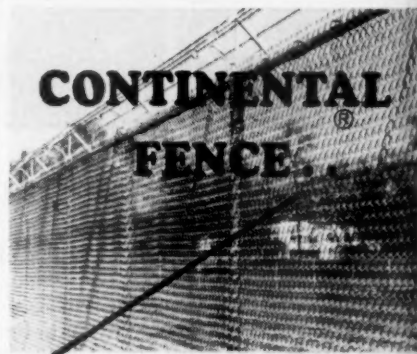
**THE
MILFORD
RIVET & MACHINE CO.**

Plants: Milford, Conn.; Norwalk, Calif.; Elyria, Ohio; Aurora, Ill.; Hatboro, Pa.

Offices: Atlanta, Chicago, Cleveland, Detroit, Fort Worth, Indianapolis, Newark, New York, Pittsburgh, St. Louis, St. Paul, San Francisco, Seattle—and Norwalk, Calif.; Stratford, Conn.; Charlotte, N. C.; Seneca Falls, N.Y.; Jenkintown, Pa.; Westwood, Mass.

Headquarters for RIVETS
(Tubular, split and special cold-formed)
and Rivet-setting Machines

For More Information Circle No. 319
on Inquiry Card—Page 17



Low Cost Security

Today, more than ever it's important to protect persons against injury and property against damage. Get permanent low cost security and control with the better built Continental Chain Link Fence.



Continental Steel Corp.
Kokomo, Indiana

Please send FREE copy of "Planned Protection"—complete manual on property protection.

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STEEL CORPORATION • KOKOMO, INDIANA

For More Information Circle No. 320
on Inquiry Card—Page 17

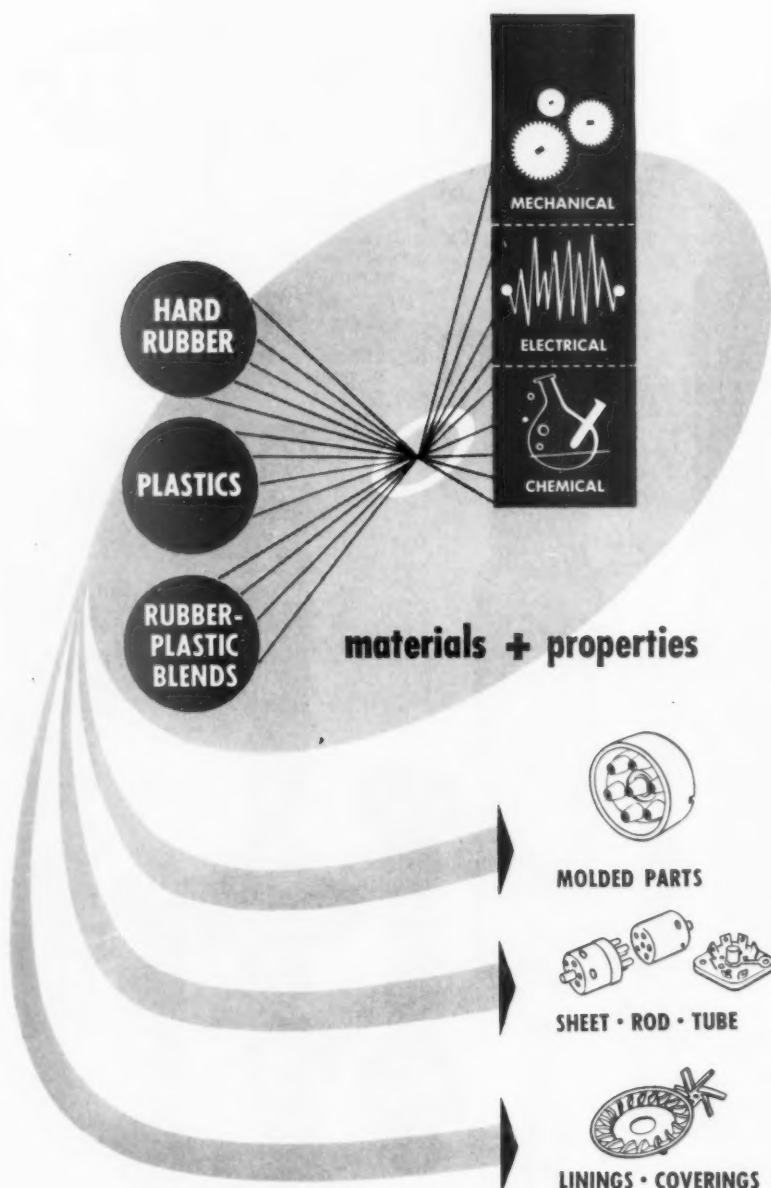


HERE ARE THE FASTENERS YOU NEED

Do you use large fasteners? Small fasteners? Long or short fasteners? Bethlehem makes them all! We turn out headed-and-threaded items in hundreds of types and sizes, making it easy for you to get exactly what you require. Bethlehem Bolts and other fasteners are made from good sound steel by men with long experience in fastener-manufacture. For a satisfactory bolting job, you can count on Bethlehem fasteners every time.

Bethlehem Bolts Are Good Bolts





ace[®] is not just one material

Ace means *tailor-made* rubber and plastic materials . . . with mechanical, electrical and chemical properties carefully blended to give you the *one* best material and most economical production methods for your designs. Hundreds of Ace rubber and plastic compounds to choose from—plus many unusual materials like Ace-Tex pyrobitumens and Ace-Hide rubber-plastic blends. Among world's largest molding, extruding, fabricating facilities.

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Plastics Handbook Free to
Design Engineers. Write today.



ACE rubber and plastic products



AMERICAN HARD RUBBER COMPANY
93 WORTH STREET • NEW YORK 13, N. Y.

For More Information Circle No. 322 on Inquiry Card—Page 17

Solar Steel Corp. of California has announced two appointments to its executive staff. Walter Kilimnik has been named sales manager of all products and will direct sales and customer service in California. R. R. Lawson takes over as manager of tubular products.

Frederic E. Merriman has been made a sales engineer for the **Whitfield Chemical Co., Detroit**. His territory includes parts of Ohio, Pennsylvania and New York.

Adamas Carbide Corp., Kenilworth, N. J., has appointed Carbide Products Co., Los Angeles, as its sales representative in southern California.



J. R. Howell

John R. Howell is now sales manager and director of **Sterling Electric Motors, Inc., Los Angeles**.

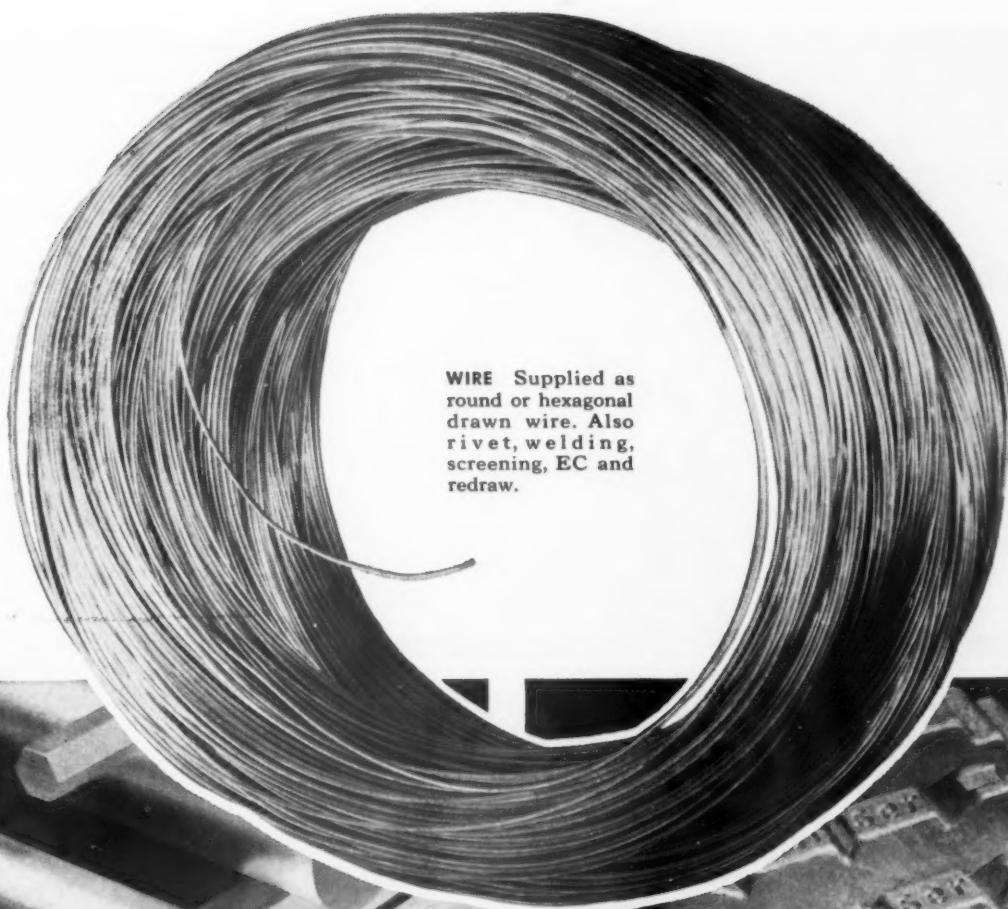
Everett Badger has joined **Accessory Products Corp., Whittier, Calif.**, as a fuel system specialist.

J. P. Stevens & Co., Inc., New York, has announced the appointment of Kirby Industries, Azusa, Calif., as national sales agents for industrial fiber-glass fabrics.

Modern Machinery Sales Co., Erie, Pa., and Moore Brothers Machinery Co., Ltd., Montreal, Canada, have been named as distributors by **Reid Brothers Co., Inc., Beverly, Mass.**, for Reid's grinders and machine tools.

The newly-formed Wiley Equipment Co., Atlanta, Ga., has been appointed to sell and service the line of fork trucks, straddle carriers and other materials handling equipment of the **Industrial Truck Division, Clark Equipment Co., Battle Creek, Mich.** Wiley will cover the Georgia counties of Screven, Jenkins, Emanuel, Candler, Montgomery, Jeff Davis, Coffee, Atkinson and Clinch.

The Industrial Supply Co., Hazelton, Pa., is now the exclusive distributor in the Wilkes-Barre, Hazelton sales area for **Ampco Metal, Inc., Milwaukee**.



WIRE Supplied as round or hexagonal drawn wire. Also rivet, welding, screening, EC and redraw.



ROD AND BAR Available in a wide range of alloys in rolled and cold finished rod and bar, round and hexagonal standard screw machine stock, hexagonal bar, redraw rod, rivet rod and round forging stock, square and rectangular bar.



PIG, INGOT AND BILLETS Kaiser Aluminum produces Pig, Ingot and Extrusion Billets in a range of alloys and sizes to meet your specific requirements.

For complete information, call or write any Kaiser Aluminum sales office or one of our many distributors, located in principal cities. See our catalog in Sweet's Product Design File or write for copy. Kaiser Aluminum & Chemical Sales, Inc., General Sales Office, Palmolive Bldg., Chicago 11, Illinois. Executive Office, Kaiser Bldg., Oakland 12, California.

Other Kaiser Aluminum products include: industrial foil, and electrical conductor. Kaiser Aluminum also supplies household, freezer and broiler foil for home uses; Shade Screening for the building industry and roofing and siding sheet for farm and industrial buildings.

Aluminum

For More Information Circle No. 324 on Inquiry Card—Page 17



**Send for the new
PRODUCT DESIGN CATALOG,**

containing 24 pages of valuable information on all Kaiser Aluminum Products.

KAISER ALUMINUM & CHEMICAL SALES, INC.
Industrial Service Division
5242 Kaiser Bldg., Oakland 12, California

Please send my free copy of the Product Design Catalog.

Name _____

Firm _____

Address _____

City _____ State _____

KEARFOTT # series 900

... all new
synchros



Mechanical Stability

Stator integrally bonded with housing prevents null shifts when rotating or clamping synchro in its mount. All materials have similar thermal coefficient of expansion for optimum performance over a wide temperature range. Case provides positive grounding and shielding.

High Accuracy

10 minutes maximum deviation from electrical zero.

Corrosion Resistant

Housings, shafts and ball bearings are stainless steel. Laminations are corrosion resistant, nickel-bearing steel. Non-metallic materials are fungus inert.

Size 11

1.062" Diam. x 1-45/64 long, weight 4 oz.

Options

Available with leads or terminals, single or double ended shafts.

And Low In Price

Type	Model	Price*
Transmitter	RS911-1A	\$29.50
Control Transformer	RS901-1A	29.00
Repeater	RS921-1A	31.50
Differential	RS941-1A	51.00
Resolver	RS931-1A	44.00

*Based on 1-25 unit price with leads and standard shaft. Quantity prices on request.

Kearfott Series 900 synchros are dimensionally and electrically interchangeable with Kearfott R200 Series Size 11 Synchros. Write today for data sheets.

KEARFOTT COMPONENTS INCLUDE:

Gyros, Servo Motors, Synchros, Servo and Magnetic Amplifiers, Tachometer Generators, Hermetic Rotary Seals, Aircraft Navigational Systems, and other high accuracy mechanical, electrical and electronic components.

ENGINEERS:

Many opportunities in the above fields are open—please write for details today.



A SUBSIDIARY OF GENERAL PRECISION EQUIPMENT CORPORATION

KEARFOTT COMPANY, INC., LITTLE FALLS, N. J.

Sales and Engineering Offices: 1378 Main Avenue, Clifton, N. J.
Midwest Office: 188 W. Randolph Street, Chicago, Ill. South Central Office: 6115 Denton Drive, Dallas, Texas
West Coast Office: 253 N. Vineland Avenue, Pasadena, Calif.

For More Information Circle No. 325 on Inquiry Card—Page 17

Hobbs Mfg. Co., Worcester, Mass., has named Parrott & Ballentine, Greenville, S. C., as exclusive sales representative in eleven southern states. Their territory will include Virginia, the Carolinas, Georgia, Alabama, Arkansas, Louisiana, Florida, Tennessee, Kentucky and Mississippi.

Griffin & Griffin, Atlanta, Ga., is now handling the products of Slater Electric & Mfg. Co., Inc., Woodside, N. Y., in Georgia and Alabama.

Milton C. Miller has been appointed district manager for the New Orleans sales district of the Prest-O-Lite Battery Co., Inc., Toledo, Ohio.

Radio Receptor Co., Inc., New York, has appointed Stanley Kramer as assistant sales manager of its Semi-Conductor Division.

Lloyd R. Paist has been made assistant manager of the Denver branch sales office of Crucible Steel Co. of America, Pittsburgh.

George W. Belcher has been appointed central district manager of sales and technical service of the Titanium Metals Corp. of America, Chicago.

The Parker Appliance Co., Cleveland, has named Ted R. Carrell as Parker o-ring sales engineer for the Pacific Coast territory. He will headquarter in Los Angeles.

James H. Johnson and Donald E. Hamilton have joined the sales staff of Wesson Metal Corp., Lexington, Ky. Mr. Johnson has been assigned to the Cleveland area, while Mr. Hamilton will work in the Illinois district.

The Marine and Industrial Engine Division of Chrysler Corp., Detroit, has elected Clyde C. Williams as vice president of sales. He has been general manager of the division since 1950.

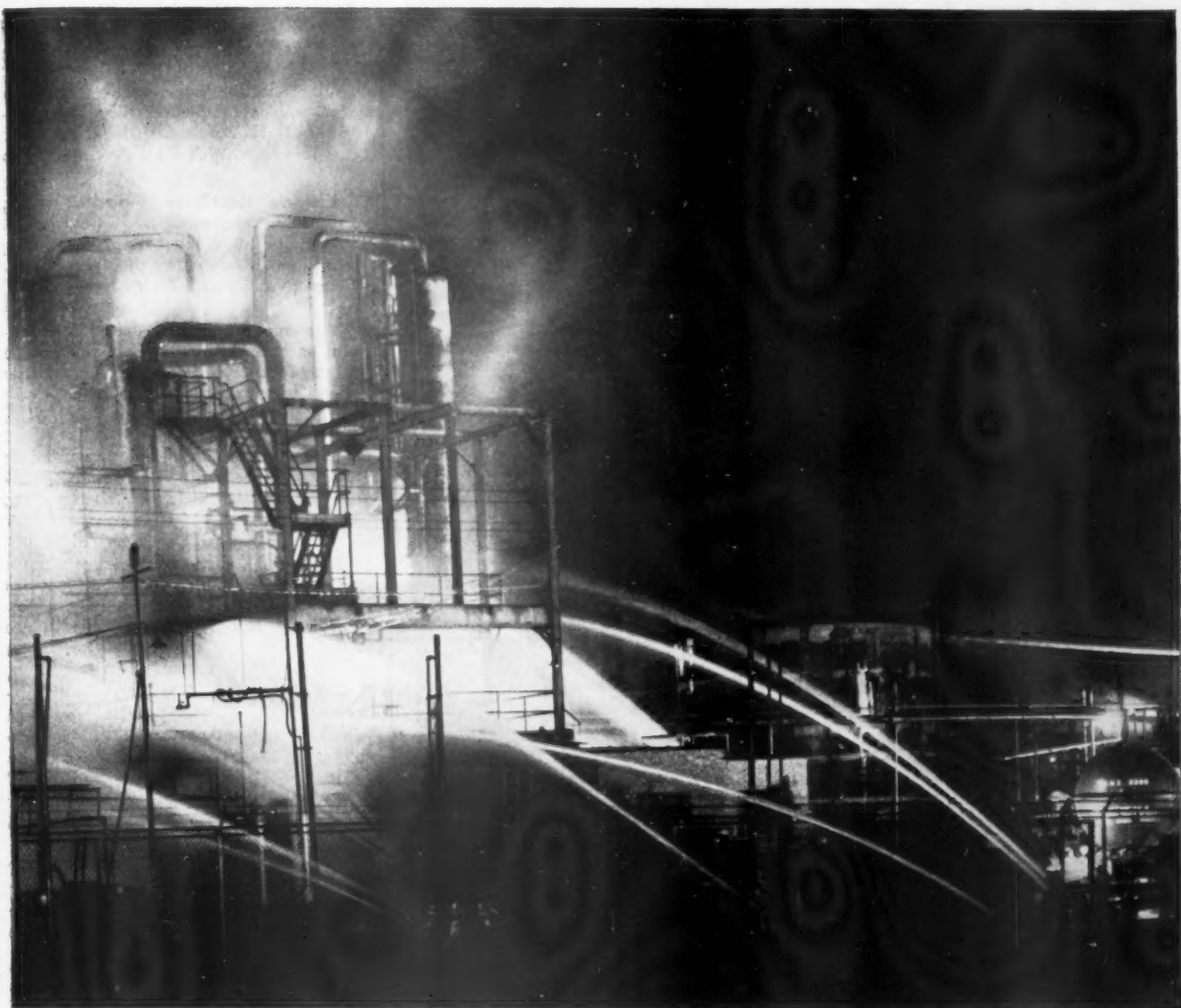
The appointment of Lyle E. Froberg as vice president in charge of sales, has been announced by the Rinshed-Mason Co., Detroit.

Testa Manufacturing Company has moved from 418 S. Pecan St., Los Angeles, to its new plant at 10130 E. Rush St., El Monte.

C. B. Parsons & Co., Seattle, has been made sales representative in Washington, Oregon, Idaho, Montana and Alaska for Electric Regulator Corp., Norwalk, Conn.

The Tapecoat Co., Evanston, Ill., has opened a west coast office in the San Francisco area to serve California, Oregon, Washington, Idaho and Nevada. L. R. Zito, formerly district manager in New York, has been assigned as district manager in the new office.

PURCHASING



Oil, Abrasion, Heat Won't Hurt Remarkable Petrochem Fire Hose

Here's a fire hose that was specifically designed for the oil industry—Petrochem . . . absolutely oil-resistant, inside and out. It has many other advantages, too . . . it's 50% lighter, yet takes 50% more pressure than conventional, oil-resistant fire hose. It's so flexible that it can be tied in knots without damage. It can be easily coiled or folded for minimum

storage. Petrochem is strong and abrasion-resistant . . . will give superlative performance under any refinery conditions, for pressures up to 500 pounds and temperatures up to 300°F.

Tube is of Neoprene . . . jacket of Dacron yarn, impregnated with black Neoprene . . . means complete oil-resistance, inside or out.

We also manufacture a com-

plete line of industrial rubber products: belting, hose, packing and moulded rubber of every construction for every need. *Through your Quaker and Quaker Pioneer distributor our research and engineering services are always available to help you solve any industrial rubber problem. Write for free folder and name of nearest distributor.*

QUAKER RUBBER CORPORATION
Philadelphia 24, Pennsylvania



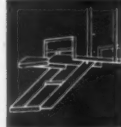
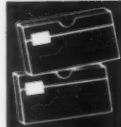
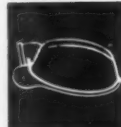
QUAKER PIONEER RUBBER MILLS
San Francisco 7, California

Bullard Safety Buyer's Guide

HEADBANDS REDUCE HARD HAT INVENTORIES



The flexibility of the exclusive headband construction of this Bullard safety hat lets you carry a smaller hat inventory. The problem of stocking various sizes is simplified because this headband can be adjusted in seconds to sizes 6 $\frac{1}{2}$ to 7 $\frac{1}{4}$, and can be changed instantly with a clean inexpensive replacement. Of course, all Bullard Glass Fiber or aluminum hats and caps surpass all standard industrial tests. Choice of colors available in both glass and aluminum hats and caps.

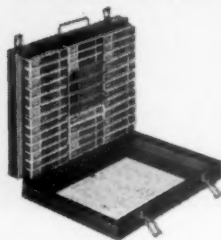


CLOSE
THE
GATE
TO
ACCIDENTS!



Bullard-Burnham Safety Hooks are equipped with a pushbutton gate that makes it impossible for loads to jar loose until the hook is manually unlocked, and also acts as a constant safety gauge indicating whether or not the hook is sprung. In either the open or closed position the safety gate leaves the hook's throat clear. Available on all standard hooks.

CUT FIRST AID LOSS DUE TO SPOILAGE OR NON-USAGE



Often in buying standard first aid units you receive an overabundance of supplies that are of little or no use. Bullard first aid. CUSTOM DESIGNED for every industrial application, offers you a wide selection of Unit fills so that you can purchase only those units that fit the accident patterns of your company. This buying of supplies that are of value to you, coupled with Bullard's individual packaging of each Unit, can save you hundreds of dollars yearly. Our distributors' sales representatives will gladly show you Bullard Kits, and assist in proper selections.

see our catalog in

S
PLANT
ENGINEERING
FILE

or write for copy

EVERYTHING
BULLARD
IN SAFETY



New safety equipment catalog now available . . . write for it!

BULLARD

E. D. BULLARD COMPANY • 275 Eighth St., San Francisco, California

For More Information Circle No. 327 on Inquiry Card—Page 17

Dietz Industrial Supply Co., Aurora, Ill., has been named an authorized distributor for the Carboly Department of General Electric Co., Detroit.

The Seattle district sales office and warehouse of Leschen Wire Rope Division, H. K. Porter Co., Inc., New York, has moved to 2724 First Avenue South.

Electric Regulator Corp., Norwalk, Conn., has appointed Brookfield & Co., Philadelphia, as sales representative in Maryland, Delaware and portions of Pennsylvania and New Jersey.

The appointment of John H. Goodwin as San Francisco district manager of the Industrial Products Division has been announced by Johns-Manville Corp., New York.

L. I. Holden has been appointed to the newly-created post of general manager of Regal Plastic Co., Kansas City, Mo.

Michael D. Vaccaro has been made vice president in charge of eastern sales for Witco Chemical Co., New York. He has been with Witco since 1937.

Joy Mfg. Co., Pittsburgh, has announced two new appointments. R. G. Gehlsen, with Joy since 1945, is now manager, Electrical Connector Products. Also, H. B. Zeppenfeld has been named sales manager, Electrical Connector Division.

The Trane Co., La Crosse, Wis., has announced that Fred Raible, formerly a Trane sales representative in Pittsburgh, is now manager of the firm's West Hartford, Conn., office.

Donald S. Black has been appointed to the sales-service section in the Chemical Division of the Goodyear Tire & Rubber Co., Akron. He will handle technical sales and service on rubber reinforcing resins and Chemigum rubbers.

Clarence L. Holmberg, formerly general sales manager of Inland Steel Co., Chicago, has been made assistant to the vice president in charge of planning and administration.

Jordan P. Freemantle has been named a sales engineer for the Butterfield Division, Union Twist Drill Co., Derby Line, Vt. He will cover New York and New Jersey.

Crucible Steel Co. of America, Pittsburgh, has announced the appointments of Howard M. Givens, Jr. and William G. Hassell as assistant general managers of sales, and William B. Downes as assistant manager, stainless sales. Previously, Mr. Givens was manager of the company's tool steel sales and Mr. Hassell was manager of Pittsburgh Crucible Division.

For More Information Circle No. 328 on Inquiry Card—Page 17→

PURCHASING

Now from **CONTINENTAL** *Single Length Wire Coils* *Up to 580[#]* *Catch Weight*

GET THESE ADVANTAGES
WITH OUR NEW HEAVY WEIGHT
COILS IN 26" DIAMETER .

- CUTS SCRAP LOSS
50% and More
- REDUCES
Material Handling Costs
When using Power Equipment
- LONGER
Continuous Runs
- LESS DOWN TIME
For Production Equipment



Money-saving comes naturally when you use Continental's new 580# Catch Weight Coils. Longer runs and fewer coils to handle mean faster production because there is less down time. And your scrap loss from coil ends is cut at least in half. The new coils are tightly bound in stout metal straps. Continental specializes in high quality basic open hearth steel wire for thousands of applications in practically any size, temper, finish, shape and analysis in low carbon and medium low carbon steels. Over half a century of wire making assures top service in solving your wire problems. Investigate the new 580# Catch Weight Coil. *It's packaged for profit!*

PRODUCERS OF Manufacturer's Wire in many sizes, shapes, tempers and finishes, including Galvanized, KOKOTE, Flame-Sealed, Coppered, Tinned, Annealed, Liquor Finished, Bright, Lead Coated and special wire. Also, Coated and Uncoated Steel Sheets, Nails, Continental Chain Link Fence, and other products.

CONTINENTAL

STEEL CORPORATION • KOKOMO, INDIANA



Now get

CERTIFIED

quality in
TEFLON*

with
Fluoroflex®-T

tube
rod
sheet

Resistoflex will certify each shipment of "electrical grade" Fluoroflex-T products on six vital physical and electrical properties. Qualification tests are performed on all incoming Teflon powder to determine whether it will yield rods, tubes and sheets which are in conformance with specification AMS-3651 "Polytetrafluoroethylene."

So don't guess about Teflon quality. Make sure of optimum performance in Teflon by specifying electrical grade Fluoroflex-T. Contact us for more details.

*DuPont trade mark for its tetrafluoroethylene resin.

*Resistoflex trade mark for products from fluorocarbon resins.

RESISTOFLEX
CORPORATION

Belleville 9, N. J.

For More Information Circle No. 329
on Inquiry Card—Page 17

Lamson Mobolift Corp., Portland, Ore., has appointed John L. Baldrige as branch manager of its southwestern district. He will headquarter in Dallas, Texas.

T. J. Ault has been elected president and general manager of the Long Manufacturing Division of Borg-Warner Corp., Detroit. J. Rodger Dryden, former president and general manager, becomes chairman of the board for the division.

Roger T. Lyman has been made sales manager of the McLean Engineering Laboratories, Princeton, N. J.

The appointment of Walter V. Scholz as an application engineer in the El Segundo, Cal., sales office has been announced by Vickers, Inc., Detroit.

The Thew Shovel Co., Lorain, Ohio, has named E. C. Brekelbaum as assistant to the general manager.

Kaiser Aluminum & Chemical Sales, Inc., Oakland, Calif., has appointed Alloys & Chemicals Mfg. Co., Inc., Cleveland, as a distributor for standard alloy ingot.

John F. Lott has been elected president of Fort Duquesne Steel Co., Pittsburgh, a division of Federated Steel Corp.

Lewis-Shepard Products, Inc., Waretown, Mass., has appointed Robert P. Ronowski as exclusive representative in the Wisconsin area.

The Wayne Crane Division, American Steel Dredge Co., Inc., Fort Wayne, Ind., has named Felix Sweeney as sales manager. He was formerly eastern district sales representative.

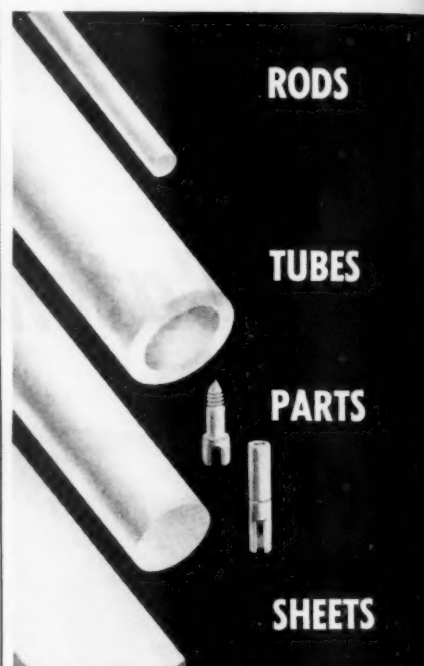
The appointment of Robert L. Reed as district manager of the Pittsburgh office, has been announced by Electro Metallurgical Co., a division of Union Carbide and Carbon Corp., New York.

The appointment of James R. Hitt, former manager of the north-central sales division, as midwest industrial sales manager, has been announced by Trailmobile, Inc., Cincinnati. Mr. Hitt will headquarter in Chicago.

W. Paul Moorhead, sales engineering representative for Aurora Metal Co., Aurora, Ill., will cover Maine, New Hampshire, Vermont, Rhode Island and Massachusetts.

Clifford E. Otto has been named metropolitan New York district manager for "Tru-Cast" beryllium copper mold components made by Manco Products, Inc., Melvindale, Mich. He will cover the five boroughs of New York City in addition to Long Island, Westchester County, northern New Jersey and southern Connecticut.

Save on
TEFLON*



... by buying the right grade
of **FLUOROFLEX®-T**
for the application

ECONOMIZE on Teflon by matching it to the application.

"Electrical Grade" Fluoroflex-T certifies optimum performance of major properties. Non porous and with maximum density, it assures highest dielectric which means less cost in the end.

"Mechanical Grade" Fluoroflex-T, while it costs less, is quality controlled to deliver the unsurpassed chemical inertness of Teflon from -100°F to +500°F, and maximum resistance to "cold flow." Presently available in extruded rods and tubes, and parts therefrom.

Ask us for recommendations on your needs, and for price lists and quotations.

*DuPont trade mark for its tetrafluoroethylene resin.

*Resistoflex trade mark for products from fluorocarbon resins.

RESISTOFLEX
CORPORATION

Belleville 9, N. J.

For More Information Circle No. 330
on Inquiry Card—Page 17

PURCHASING

FLEXLOC AT WORK



MORE AND MORE FLEXLOC LOCKNUTS are being used on applications where dependable locking is essential to the operation of the equipment and the safety of the operator. This bundling chain with automatic lock provides positive grip and safe, sure bundle handling.

Two FLEXLOC Self-Locking Nuts hold this assembly together. Once the locking threads are fully engaged, the nuts won't work loose, regardless of the conditions under which they are used.

FLEXLOC one-piece, all-metal nuts are available in a full range of sizes in any quantity. Standard FLEXLOCs are stocked by leading industrial distributors everywhere. Write for Bulletin 866 and samples. STANDARD PRESSED STEEL CO., Jenkintown 31, Pa.

DO YOU KNOW? Standard FLEXLOCs smooth off rough bolt threads. The locking threads on all-metal FLEXLOCs are not chewed up when used on rough bolts. Standard FLEXLOCs lock securely on bolts varying in diameter tolerances. The all-metal, resilient locking sections of the nut accommodate themselves to the diameter tolerances. Standard FLEXLOCs are one piece, all metal. They are not affected by temperatures to 550°F. Nuts lacking these features have a more restricted temperature range.

Standard FLEXLOCs lock securely—stopped or seated—when 1½ threads of a standard bolt are past the top of the nut.

Standard FLEXLOCs are not affected by moisture, oil, dirt or grit. They lock efficiently under all conditions, regardless of the vibration encountered.



FLEXLOC
LOCKNUT DIVISION
SPS
JENKINTOWN PENNSYLVANIA

Shuts Doors, Windows, Stops Conveyors
Sounds Alarm...

KILLS TOUGH FIRES!



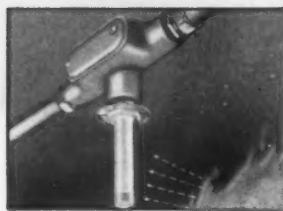
Randolph EXTINGUISHING SYSTEMS

Where your fire hazards are severe and areas are large or inaccessible . . . play safe! Be ready and secure with a *fast action* Randolph Automatic Fire Extinguishing SYSTEM!

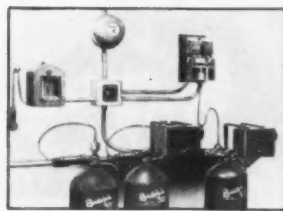
At the first spark or flicker of flame . . . hundreds of pounds of powerful, non-damaging carbon dioxide flood the entire area . . . reach into every corner . . . stop the toughest fire . . . *all* automatically . . . *all* in a few seconds!

Thermostats set off alarms and immediately release a fire killing charge of CO₂ from stored cylinders through pipelines to overhead nozzles . . . the CO₂ charge smothers the fire with a heavy snow blanket. This charge can also shut doors, close windows, shut off motors, fans, conveyors, gas lines and close ducts . . . *all* automatically.

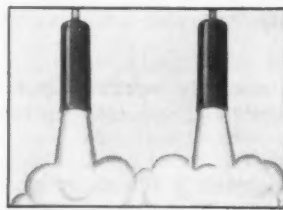
Send for Randolph's free FIRE HAZARD INDEX recommending the correct equipment for protection against any of the 580 typical fire hazards that might exist on your premises. Randolph's System Engineering Service is also available without cost or obligation. Write today: Randolph Laboratories, Inc., 1 E. Kinzie St., Chicago 11, Ill.



A fire! And the sensitive detector sends current to an alarm and storage tanks!



Doors and windows close . . . conveyors stop automatically. Powerful carbon dioxide pours through the feed lines.



Giant-size "CYCLONE" nozzles deliver the fire-killing punch . . . flood the entire room in 15 seconds!



For More Information Circle No. 332 on Inquiry Card—Page 17

Salesman Must Move from Order-Taking to Professional Status, La Rowe Tells Trainees

"We have moved from a seller's market to a highly competitive buyer's market. This will, of necessity, require more aggressive selling to obtain new possible accounts. It means the rebirth of the salesman from no more than an order taker to that of a professional selling man in his own right. This statement was made by Harold K. La Rowe, Director of Purchases for American Cyanamid Company before the sales trainees of the Dow Chemical Company in Midland, Michigan recently.

In his talk, Mr. La Rowe related how his Purchasing Department evaluated the desirable qualities of a competent salesman. He also told the group what he considered to be factors which do not make a good salesman, and gave them a code of ethics for both the purchasing man and the salesman.

On the status of the present market, Mr. La Rowe said, "We have been entering a period requiring highly competitive selling. In the near future we expect that it will be harder to obtain each purchase order and contract. To the buyer it means the re-expression on his part of negotiating skills and the evaluation of quality, service and price, because in the not too far distant past period of critical shortages of much needed materials he, along with the salesman, may have been led into some carelessness along these lines."

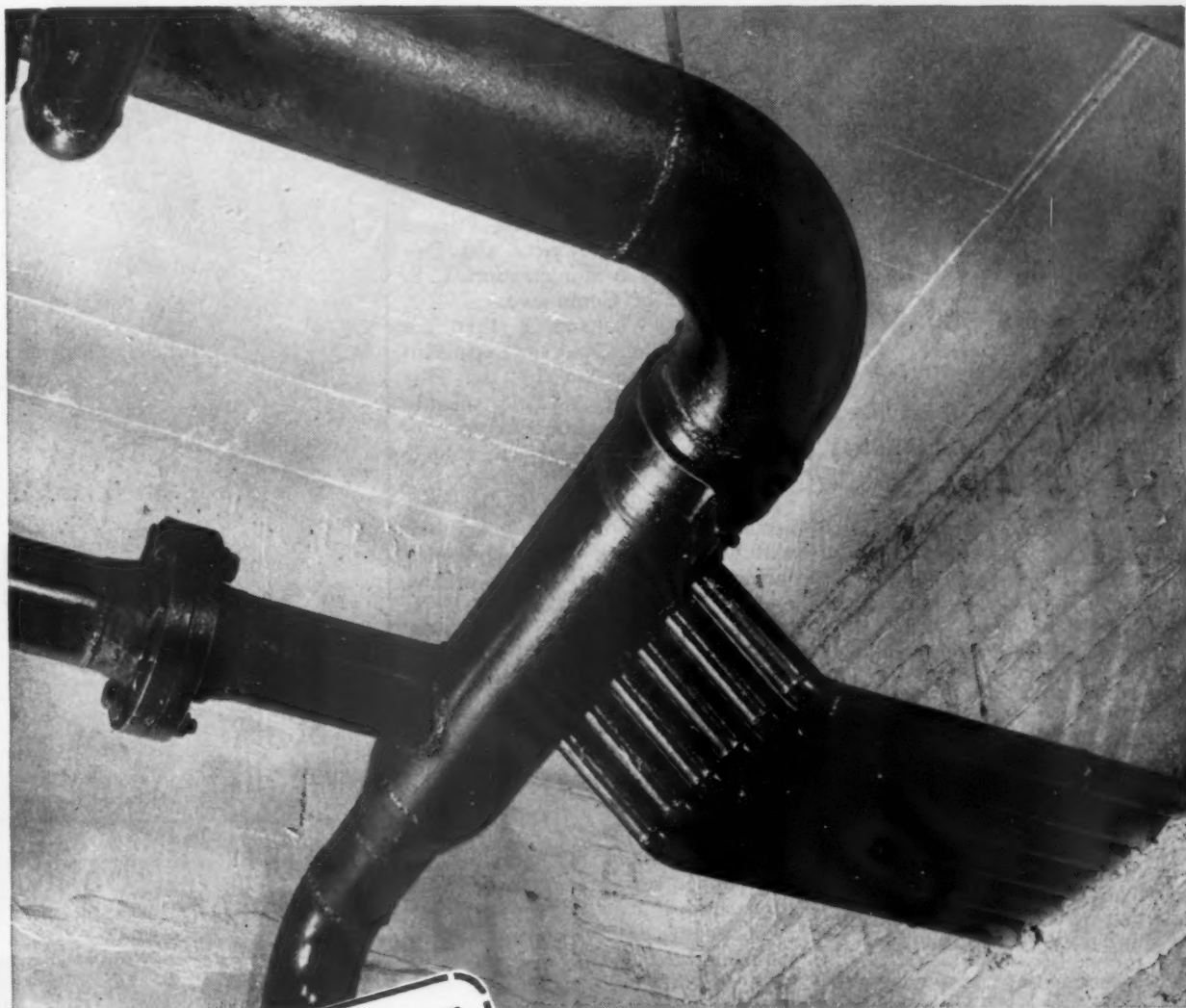
"There is no doubt that we need salesmen in business, that is, competently trained, forward looking and aggressive salesmen. We need purchasing people too who are forward looking."

"The function of buying, or the responsibility of the Purchasing Department, is to secure materials and services of the required quality for delivery at the time needed and to obtain them in a free competitive market as economically as is consistent with the quality and service specified.

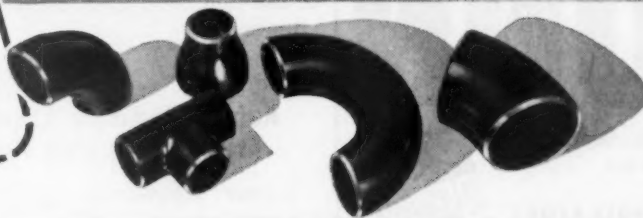
"The mutuality of buying and selling must not be over-looked. It has been pointed out often that buying and selling are part of the same transaction. Salesmen seek customers, and buyers require good suppliers. Both are significant partners in the distribution of goods."

USE INQUIRY CARD
PAGE 17

How to Tame a Tough Joint



**ANOTHER JOB DONE
BETTER WITH GLOBE
WELDING FITTINGS**



KEEP an eye on the future when you install piping—even the most innocent looking connection can become a "tough joint" through leakage — pressure-loss — the focal point for erosion and corrosion — constant maintenance time and cost.

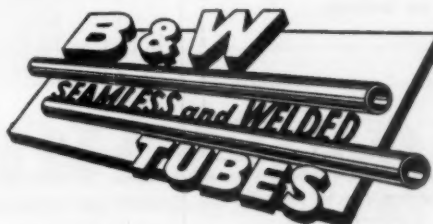
You can tame probable "tough joints" in piping by making connections with permanently tight, leakproof Globe

Welding Fittings. Strength is forged in the fittings — flow friction and pressure-loss minimized by precision formed true angles, radii, circularity—weight and space requirements reduced—exact dimensional accuracy that saves time, speeds piping assembly. To do any piping job better — use Globe Precision-Process Welding Fittings.

**THE BABCOCK & WILCOX COMPANY
TUBULAR PRODUCTS DIVISION**

Fittings Department

3839 W. Burnham St. • Milwaukee 46, Wisconsin



For More Information Circle No. 333 on Inquiry Card—Page 17



".. Bunn Tying Machines .. time savers and great money savers"

says G. A. Seyfer, Office Mgr.,
KIWANIS INTERNATIONAL

Bunn Tying Machines have long been used in Kiwanis International's Chicago headquarters for tying packages of supplies for shipment and for "tying out" mail. In 1½ seconds and less, each package is tied securely, with just the right amount of twine.

Bunn Tying Machines adjust automatically to any size or shape . . . tie with slip-proof knot and correct, uniform tension.

Simple, effortless operation cuts down labor turn-over . . . steps up production . . . eliminates bottlenecks and overtime pay. With a Bunn Machine one untrained operator can do as much as 5 to 10 experienced hand-tyers.

Almost anything that can be tied by hand can be tied faster and better with a Bunn Tying Machine.

BUNN

B. H. BUNN Co., Dept. PU-2
7605 Vincennes Ave.
Chicago 20, Ill.

GET THE WHOLE STORY

Send today for this fact-packed booklet, which illustrates the many advantages of Bunn Tying Machines. There is no obligation.



MAIL THIS COUPON NOW

B. H. Bunn Co., Dept. PU-2

7605 Vincennes Ave., Chicago 20, Ill.

Please send me a copy of your free booklet which shows how Bunn Machines can save time and money in my business.

Name _____

Company _____

Address _____

City _____ Zone _____ State _____

For More Information Circle No. 334
on Inquiry Card—Page 17

Dept. of Commerce Acts To Offset Copper Shortages

Secretary of Commerce Sinclair Weeks has announced twin actions by the Department of Commerce to alleviate the current shortage in domestic copper supplies and to maintain employment in domestic copper-consuming plants.

Government-accumulated copper released by the Office of Defense Mobilization will be distributed by the General Services Administration on recommendations of the Copper Division of the Business and Defense Services Administration, U.S. Department of Commerce.

Secretary Weeks said that the copper obtained under expansion programs authorized by the Defense Production Act was insufficient to meet, in full, current industrial requirements in copper consuming industries.

The distribution of the copper accumulated in the DPA inventory will be limited to those companies facing shutdowns for lack of the metal. Requests from such companies should be made directly to the Copper Division of BDSA. The released copper is from the DPA inventory, not from the national stockpile.

At the same time, the Department's Bureau of Foreign Commerce announced certain special requirements for filing export license applications for refined copper, copper scrap, and copper-base alloy scrap.

These special requirements, established for the fourth quarter 1954, were found necessary because of the tightened U.S. copper supply situation.

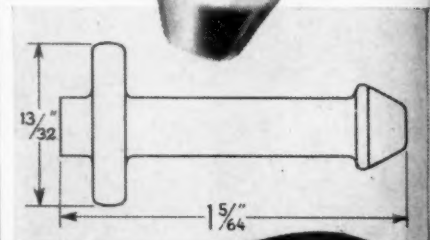
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Kaiser Aluminum Acquires Erie, Pa., Forging Plant

Kaiser Aluminum & Chemical Corporation is further expanding and diversifying its production of aluminum mill products by acquiring a forging plant at Erie, Pa. The Erie plant can produce aluminum die forgings up to 150 pounds and has a rated capacity of 12 to 15 million pounds of forgings per year.

Kaiser plans not only to continue the plants' existing business—forged aircraft and ordnance parts—but hopes to further enlarge its position as a supplier of commercial products.

Kaiser will operate the facility under lease from the General Services Administration. It formerly was operated by Willys Motors, Inc.



**This
cost:**

SCREW MACHINE	\$14.00 per thousand
COLD HEADED	\$5.20 per thousand
SAVING	\$8.80 per thousand

How about your fasteners or small parts?
Have you had an estimate from HASSALL?

This is a typical example of how HASSALL saves thousands of dollars for cost-conscious manufacturers in hundreds of industries. This part is made in one piece by cold heading . . . the part is not only lower in cost but also stronger and just as accurate. Savings amount to \$8.80 per thousand and this manufacturer used hundreds of thousands a year!

Perhaps your parts can be made by this better, lower cost method. Send samples or sketches of your parts for a prompt, \$\$\$ saving quotation.



- Send for 3 color decimal equivalent wall chart.
- On request, our 36-page catalog.

JOHN HASSALL, INC.

P. O. Box 2268 Westbury, Long Island, N. Y.
For More Information Circle No. 335
on Inquiry Card—Page 17

For More Information Circle No. 336
on Inquiry Card—Page 17→
PURCHASING

NEW

TOTALLY PROTECTED

A-C.

MOTORS

Yes, it's true!

Industry everywhere is checking into the facts about these amazing new *Totally Protected A-c.* Motors by Reliance.

To help you check the facts to see where it fits into *your* production area, we've prepared a booklet called "Check the Facts".

Get your copy today—by mail, or through your local Reliance district sales office or distributor.

B-1489

CHECK
THE
FACTS



RELIANCE **ELECTRIC AND ENGINEERING CO.**

Canadian Division: Welland, Ontario

1056 IVANHOE ROAD • CLEVELAND 10, OHIO



Builders of the Tools of Automation





P. A. needs
Solder



I've got to
have Babbitt



I'll need
some Brass



We'll want
Anodes and
Lead



Requirement:
Aluminum and
Magnesium



Requirement:
Die Casting
Metal

Are you one of these?

If you are, your source is Federated Metals . . .
for one or for all non-ferrous metals.

Federated, a division of American Smelting and Refining Company, is a nationwide organization with 14 plants and 24 sales offices for better service and faster delivery.

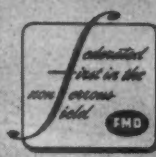
See Federated First for all Non-Ferrous Metals.

Federated Metals Division

AMERICAN SMELTING AND REFINING COMPANY
120 BROADWAY, NEW YORK 5, N. Y.

In Canada: Federated Metals Canada, Ltd., Toronto and Montreal

Aluminum, Magnesium, Babbitts, Brass, Bronze, Anodes, Zinc Dust,
Die Casting Metals, Lead and Lead Products, Solders, Type Metals



For More Information Circle No. 337 on Inquiry Card—Page 17

E. T. Gushee, Pioneer in Field of Purchasing, Dies Suddenly

Edward T. Gushée, vice-president of the Detroit Edison Company, and long a prominent figure in purchasing, died recently in Detroit after a short illness. Mr. Gushée had been elected president of the American Standards Association only a few weeks before.

Mr. Gushée had a long and distinguished record of service with the Detroit Edison Company and with governmental bodies. As purchasing agent for his company in the Twenties, he took an active part in the work of the National Association of Purchasing Agents, then struggling for its existence. He was co-author with L. F. Boffey, also a dominant figure in N. A. P. A. affairs, of the authoritative book "Scientific Purchasing." In 1937 he was awarded N. A. P. A.'s Shipman Gold Medal Award for outstanding contributions to the profession.

1 1 1

Publication Features Conversion Of Old Planer To Skin Mill

How an old, heavy-duty planer was successfully converted to a modern skin mill for producing integrally-stiffened "skins" for jet planes is the featured article in the new "Simmons Way," published by the Simmons Machine Tool Corporation, Albany, New York

The 12-page, illustrated publication also features stories of how an ancient planer, an outdated boring mill, and several turret lathes were completely rebuilt and modernized at impressive savings to their owners.

1 1 1



By "price-tagging" all production equipment and tools Clark Equipment Company's Industrial Truck Division found that production workers had more respect for their machines and tools. Men were more careful when they realized that a machine cost \$22,000, or that reamers cost as much as \$18.72 each.

As a direct result of this cost education program, Clark's tool breakage expenses at its Battle Creek, Mich., plant, have been reduced by 20 per cent and there has been substantially less machine downtime for maintenance and repair.

For More Information Circle No. 338 on Inquiry Card—Page 17→

PURCHASING

Meet U.S.

STEEP GRADE

the new

Package Belt

for steep
inclines



No belt was ever better named than the U. S. SteepGrade! Its *new*, exclusive surface design gives positive non-slip control in carrying many materials on descents or ascents as *steep as 45 degrees*. The multiple rows of deep gripper-cleats hold packages and other articles firmly, prevent "avalanches" at critical angles. The ability of U. S. SteepGrade to work at such steep inclines, saves valuable floor space, conveyor length and belt footage. U. S. SteepGrade is the truly modern package belt.

Made by United States Rubber Company from strong, resilient rubber, U. S. SteepGrade's unique deep gripper-cleat design *insures* proper grip and longer wear. Special molding process makes belt and cleats one unit; this exclusive feature prevents gripper-cleats from being torn off by heavy cases. Surface design incorporates self-cleaning action as belt flexes over pulleys—cleans as it flexes!

For more facts about this great new belt, get in touch with any of our 27 "U.S." District Sales Offices or write address below.



"U.S." Research perfects it... "U.S." Production builds it... U.S. Industry depends on it!

UNITED STATES RUBBER COMPANY
MECHANICAL GOODS DIVISION • ROCKEFELLER CENTER, NEW YORK 20, N. Y.

Hose • Belting • Expansion Joints • Rubber-to-metal Products • Oil Field Specialties • Plastic Pipe and Fittings • Grinding Wheels • Packings • Tapes
Molded and Extruded Rubber and Plastic Products • Protective Linings and Coatings • Conductive Rubber • Adhesives • Roll Coverings • Mats and Matting

For More Information Circle No. 340 on Inquiry Card—Page 17

FEBRUARY, 1955

303

USE Brass or Bronze?

If your problem is pressing...
or forming...or drawing...or
stamping...P&A has the
answer for each of your
fabricating requirements...
sheet...strip...mill coils...or
cut to length.

Check

with us for immediate
recommendations from
your samples or
specifications...

WATCH FOR OUR ANNOUNCEMENT

We are moving to
our new, Modern
Plant in Thomaston
... Soon!



THE PLUME & ATWOOD MFG. CO.

Main Office and Fabricating Div.: 530 Bank St., Waterbury, Conn.

Mill Div.: Thomaston, Conn.

N. Y. Office: 220 Broadway

New Welding Process Cuts Costs by 25-50%

Higher welding speeds, better quality welds, and lower operating costs are the chief benefits of a new welding process developed by Westinghouse Electric Corp. The new consumable-electrode, inert-gas, arc welding process has been field tested and is now in production.

Field tests, according to Westinghouse, show the new process to have a 15-20% faster welding speed at a 25-50% lower cost than other manual and semi-automatic inert-gas methods.

Key to the new process is said to be a new coated wire. Called the West-ing-arc MS-20 wire, it is a product of five years of research and development. Its greatest benefits are derived when used with the new welding gun, welding feed-wire control, and d-c welder, all components of the new system.

The welds produced by this new system can be painted without cleaning as there is virtually no spraying or spatter of electrode material—nor, is there any slag-covering on the weld. Mild steel—with or without normal mill scale—of thicknesses from 1/16-inch up can be fillet, lap, or butt welded. The system can be used as a semi-automatic process—where the operator holds the gun; or, as an automatic process—where the gun is clamped into position and the work piece moved. Primarily intended for horizontal and flat position welding, the new process is not yet developed for vertical or overhead welding.

1 1 1

New Paperboard Made From Straw Has High Crush Resistance

A new type of paperboard—made from wheat straw—has been announced by Alton Box Board Company, Alton, Ill. The company says the new product excels that made from traditional wood pulps in its all-important ability to resist crushing.

The new material—named Cor-U-Cel—was developed specifically for use as the fluted center portion of corrugated paperboard. It is corrugating medium that gives boxes made from corrugated paperboard their combination of light weight, stacking strength and impact resistance.

Marvin W. Swaim, Alton Box Board's first vice-president and general manager, said that two fac-

(Please turn to page 306)

For More Information Circle No. 341 on Inquiry Card—Page 17

This Yale truck does 3 (or more) jobs

A SINGLE YALE TRUCK—WITH JOB-SPECIFIED
YALE ATTACHMENTS—HANDLES
ANY LIFTING, MOVING OR STACKING JOB!



YALE Gas Truck with basic forks cuts costs on a host of handling jobs. Easier, surer performance reduces operator fatigue...promotes efficiency...cuts truck downtime.



Revolving attachment on same YALE truck handles huge paper rolls or drums...stacks them flat or upended. Takes only minutes to switch from this device to next.



Pusher attachment speeds loading of delivery trucks and railway freight cars. Other YALE attachments handle bulky units, kegs, bales, many other materials.

List *your* handling jobs! You can do every one of them with *one* YALE Gas Truck! What's more, you'll do them faster, more efficiently and at far less cost. For, the combination of a powerful YALE Gas Truck and the proper YALE attachments can't be beat for dependable, speedy handling of a variety of materials.

YALE Gas Trucks give you features found in no other gas truck—Fluid Coupling to extend clutch life; hypoid gears for better shock resistance, automotive-type brakes for smoother, safer stops; a rugged 65-HP engine. And YALE attachments—installed in minutes, removed as quickly—are designed for specialized handling of every sort.

Select what you need from the most complete line in the industry—your YALE representative will be glad to recommend the equipment that will do the best job for you. Simply filling out the coupon will bring him to your door.

YALE*

INDUSTRIAL LIFT TRUCKS AND HOISTS

*REG. U. S. PAT. OFF.

Gas, Electric, Diesel & LP-Gas
Industrial Trucks • Worksavers • Warehouse
Hand Trucks • Hand & Electric Hoists

MAIL THIS COUPON TODAY

The **YALE & TOWNE** Manufacturing Co., Dept. 252
Roosevelt Boulevard, Philadelphia 15, Penna.

☐ Please have your local representative call.
☐ Please send me further information on YALE Trucks and attachments.

Company _____ Title _____
Name _____ City _____ State _____
Street _____

In Canada write: The Yale & Towne Manufacturing Company
St. Catharines, Ontario, Canada



Forming the above Special Pan Head Bolt in two blows presented a difficult cold heading problem that was solved by the use of Keystone "Special Processed" Cold Heading Wire.

The superior grain flow characteristics of "Special Processed" Wire provided the necessary upsetting and die forming qualities to withstand the terrific displacement of metal during the two blow process. The head was formed without buckling, distortion or cracking—longer die life, increased production, and a higher quality finished product resulted.

Carefully selected ingredients—our own exclusive drawing and heat treating process—rigid quality controls and inspections—give this wire unsurpassed performance on any unusually difficult cold heading job. Your inquiry is welcomed.



For More Information Circle No. 343 on Inquiry Card—Page 17

(Continued from page 304)
tored prompted the company in development of the new paperboard. First, statisticians warned that new sources of fibre would be required before many years had passed if the paperboard and paper industry were to continue the rapid growth which has carried it to fifth place among the nation's industries. Second, there was a need for stronger, more durable corrugated board for use in packaging such large items as refrigerators and television sets and for use in containers, such as beverage cases, which are used over and over again.

G.E. Has Produced More Than 100 Million Fractional HP Motors

General Electric Company has now produced more than 100 million fractional horsepower motors, a record set since G.E. first produced this type of motor in 1902.

H. A. MacKinnon, vice president and general manager of the company's Component Products Division, also predicted that the company will double that total by 1965, building a second 100 million motors in one-fifth the time required for the present record.

He defined fractional horsepower motors as electric motors of less than one horsepower rating, excluding clock and toy motors and certain types of miniature drives.

Book Gives Information On Aluminum Rod, Bar and Wire

Comprehensive information on aluminum rod, bar and wire and their many applications is presented in a new book published by Kaiser Aluminum & Chemical Sales, Inc.

Entitled "Rod, Bar and Wire Product Information Book," the 160 page, illustrated book is believed to be the first comprehensive volume on this subject ever offered industry.

It is designed to assist purchasing executives, engineers, designers, and production personnel in the selection and specific use of the most suitable aluminum rod, bar and wire for different applications.

The book may be obtained free of charge when requested on company letterhead, or at a cost of two dollars (\$2) for personal libraries. Copies are available from Technical Editor, Kaiser Aluminum & Chemical Sales, Inc., 22 North LaSalle Street, Chicago 1, Illinois.

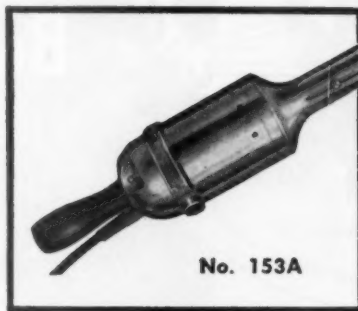
Geared to Meet the Need for Speed

That's why STANLEY ELECTRIC TOOLS are dependable workers on all jobs.



No. 230 Series

DRILLS! Rugged — accurate — powerful — complete — from the 1/4" Mighty Midget to the 1 1/4" largest of the line. Stanley Electric Drills are built to serve — to do the job.



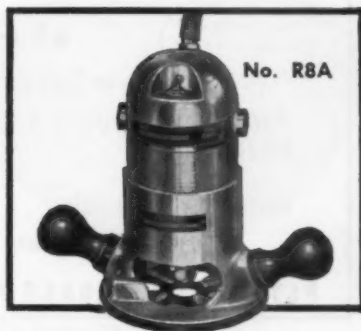
No. 153A

GRINDERS! Four different sizes — light enough for hand-grinding. 2 can be mounted and used as stationary grinders.



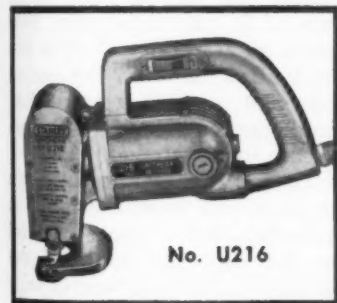
No. 246

BENCH GRINDERS! Sturdy, smooth-running, ball-bearing grinders designed in six sizes. Every shop has many uses for these durable, heavy-duty tools.



No. R8A

VERSATILE! The Router is standard equipment in every woodworking shop. Fine for non-ferrous metals, too. Complete line of routers 3/4 HP to 3 HP. Accessories available.



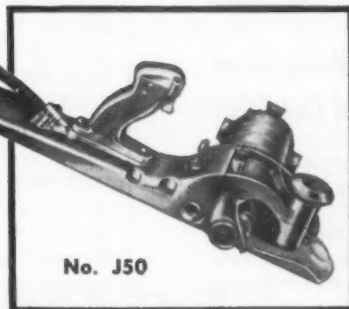
No. U216

UNISHEARS! The modern cutter that's replacing snips wherever steel and brass cutting is done. Stanley line consists of six portable models cutting 18 to 6 gauge, and three stationary models for 10 and 14 gauge.



No. W70

POWER SAWS! NEW 7" builders saw (W70) makes every cut used in modern building. Protected against blade freezing and motor burn-out. Other sizes and models available.



No. J50

PLANES! Power planes with spiral cutters up to 2 1/2" wide and 3/16" deep — with or across the grain.



No. 92

DISC SANDERS and grinders — electric hammer — electric screw-drivers! The Stanley Electric Tool Line is complete — geared to today's needs!

Tools To Rely On!

For virtually every Stanley Electric Tool indicated above, there is a full line of attachments. And each tool is built to Stanley's rigid standard of quality—quality known the world over. You can use any or all

of these fine Electric Tools with absolute confidence.

A directory of Stanley Service Stations is packed with each tool. For complete information see your industrial distributor, or write to Stanley Electric Tools, 872 Myrtle Street, New Britain, Conn. Ask for Catalog 12.

STANLEY
Electric Tools



A Division of The Stanley Works
HARDWARE • TOOLS • STEEL STRAPPING • STEEL



PLYMOUTH

Rubber Bands

OUTSTRETCH
OUTLAST
ALL OTHERS

● Bands for Every Purpose
● Saves Time and Labor in Production
● We'll Make Them for Your Special Needs

PROMPT DELIVERY

NATIONALLY DISTRIBUTED . . . AVAILABLE AT YOUR REGULAR SUPPLIERS
All Plymouth Standard Bands Made to Federal Specifications
PLYMOUTH RUBBER COMPANY, Inc., Canton, Mass.

For More Information Circle No. 345 on Inquiry Card—Page 17



Amazing Test Reveals Valve Stem and Packing Still in Good Condition

Ordinarily, you would never open or shut the sturdy self-closing stop on a Halsey Taylor Cooler this many times!

Yet this is but one of many continuing tests made by Halsey Taylor to provide valuable data on the life and operation of every part and every completed unit.

Just another reason why you can expect the ultimate in performance when the cooler you install bears the Halsey Taylor nameplate!

The Halsey W. Taylor Co., Warren, Ohio



Halsey Taylor Cooler with stainless steel or vitreous enamel tops.

Coolers and Fountains for shop or office

For More Information Circle No. 346 on Inquiry Card—Page 17

U. S. Chamber Says "No End in Sight" for Construction Boom

The construction boom continues with no end in sight, bolstered by dramatic shifts in population as well as by higher incomes and easy financing. That's the highlight of a report on the economic outlook, by the U. S. Chamber of Commerce.

The boom is ramifying through many other sectors of the economy, such as utilities, household goods and appliances, while the volume of work in the hands of architects foreshadows sustained construction activity into 1955, the Chamber said.

Other features of the economic outlook were listed as:

1. Spendable income (income after taxes) is at an all time high, partly because of recent tax cuts.

2. Foreign trade is improving; the gold and dollar balances of foreign countries in general are in better shape.

3. Unemployment insurance claims are declining.

4. The inventory situation has improved considerably.

In the second quarter of last year inventories were increasing at an annual rate of \$6 billion, whereas in the second quarter of this year inventories were being used up at the rate of \$5 billion a year. This represents an \$11 billion shift in the inventory situation. Now the nation is selling and consuming more than it is producing and this foreshadows an increase in production.

Two types of population shifts are taking place, one from the cities to the suburbs, and a more general one to the west and south of the nation. These shifts are largely self-reinforcing, for as people go into the suburbs new utilities and transportation facilities are needed; new schools, churches and shopping centers are built. These, in turn, attract more people.

The movement to the west and south has reached such proportions that one-sixth of all non-manufacturing jobs in the whole country are now located in California and Texas, and California leads the nation in the number of construction workers. One reason for this shift, the Chamber said, is that extensive automobile travel of the past few years has made the advantages of milder climate apparent to more persons.

**FOR FURTHER INFORMATION
ON PRODUCTS IN THIS ISSUE
PLEASE USE INQUIRY CARD
ON PAGE 17**

A Hundred

or a MILLION pieces

...always **UNIFORM**

Cut to Your Precision Demands!

When Western Felt cuts a component part to your specifications, piece after piece is a precision-cut part. You want that kind of uniform precision because the performance of *your* product depends upon it. And because of the peculiar properties of wool felt fibres, especially where the more dense types are specified, it can be processed with amazingly close tolerances. Tolerances as close as a few-thousandths of an inch can be supplied when required.

Western Felts are manufactured to the density you require—cut and supplied

exactly to your specifications. They resist wear, age and weather...never ravel nor fray. They seal, insulate, absorb sound and vibration, or lubricate...as you wish! Chemically treated, they can be moth-proof, mildew-proof, flame or water resistant.

You name it...specify it...we put the benefits of 54 years of experience back of making a felt component that will meet your specifications. Write today—your inquiry will receive prompt attention.

WESTERN

4021-4139 Ogden Ave., Chicago 23, Illinois
Branch Offices in Principal Cities

Felt



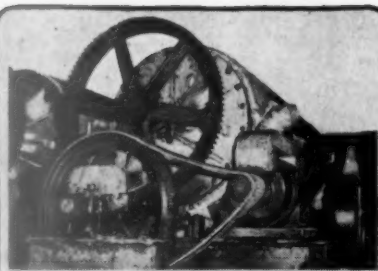
WORKS

Manufacturers and Cutters of Wool Felt

For More Information Circle No. 347 on Inquiry Card—Page 17

FEBRUARY, 1955

309



"THIS LUBRICANT INCREASED CHAIN LIFE 4 TIMES"

—says FASTERFAT, Division of National Sea Products Limited

"Two years ago we switched from the lubricant we were then using to your LUBRIPLATE, and we are pleased to inform you that we have had very excellent satisfaction from its use. High speed silent chains on the drives of our fish meal cookers, which were formerly worn out in about six months, are still in service after two years."

REGARDLESS OF THE SIZE AND TYPE OF YOUR MACHINERY, LUBRIPLATE GREASE AND FLUID TYPE LUBRICANTS WILL IMPROVE ITS OPERATION AND REDUCE MAINTENANCE COSTS.

LUBRIPLATE is available in grease and fluid densities for every purpose... LUBRIPLATE H. D. S. MOTOR OIL meets today's exacting requirements for gasoline and diesel engines.



For nearest LUBRIPLATE distributor see Classified Telephone Directory. Send for free "LUBRIPLATE DATA BOOK"... a valuable treatise on lubrication. Write LUBRIPLATE DIVISION, Fiske Brothers Refining Co., Newark 5, N. J. or Toledo 5, Ohio.



For More Information Circle No. 348 on Inquiry Card—Page 17

Executive In Copper Association Disclaims Rumors Of Shortage

Scare stories about the shortage of copper which have led some industrial users to search for substitutes are completely unfounded, one of the industry's leaders said recently. The metal is in ample supply and copper production during the next year or two will be increasing by nearly one fourth.

George W. Proffitt, executive secretary of the Copper and Brass Warehouse Association, told a meeting of construction industry officials sponsored recently by the Chamber of Commerce of the United States that during the last emergency, the propaganda regarding the shortage of copper was—as is usual—greatly exaggerated.

"During the most recent 'so-called' copper shortage many substitutes both metal and plastic came into use in many industries including, of course, the construction industry."

Mr. Proffitt concluded his remarks by tracing some new uses of copper and brass in the construction industry, and pointed out that architects and construction people can depend upon copper and copper base alloys being on an immediate shipment basis.

Contract Terminating Guide Offered by U. S. Chamber

The Chamber of Commerce of the United States has issued a pamphlet to serve as a guide through the confusion and inconsistencies of government contract termination settlement.

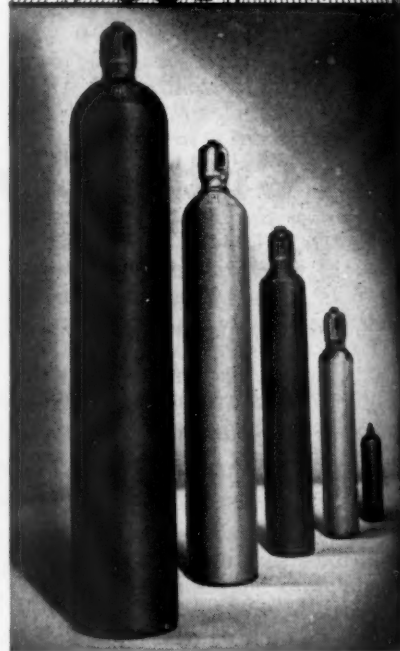
The 60-page booklet, "Contract Termination Guide," is believed to be the only interpretation of current settlement procedures available to manufacturers.

Properly used, it is expected to result in a big saving in time and work for prime contractors, subcontractors, and suppliers. It now requires an average of one year to complete a settlement.

The guide takes the reader step by step through the termination process. It includes chapters on initiating termination action, steps preliminary to submission of claims, disposition of termination inventory, and settlement procedures.

The guide may be obtained from the Manufacture Department, Chamber of Commerce of the U.S., 1615 H St., N.W., Washington 6, D.C. Orders of one to 10 copies are \$1 each and discounts are available for bulk orders.

Buy Your Cylinders from the Leading Manufacturer—HARRISBURG STEEL



Harrisburg Steel is the largest producer of quality seamless steel cylinders for high pressure gases.

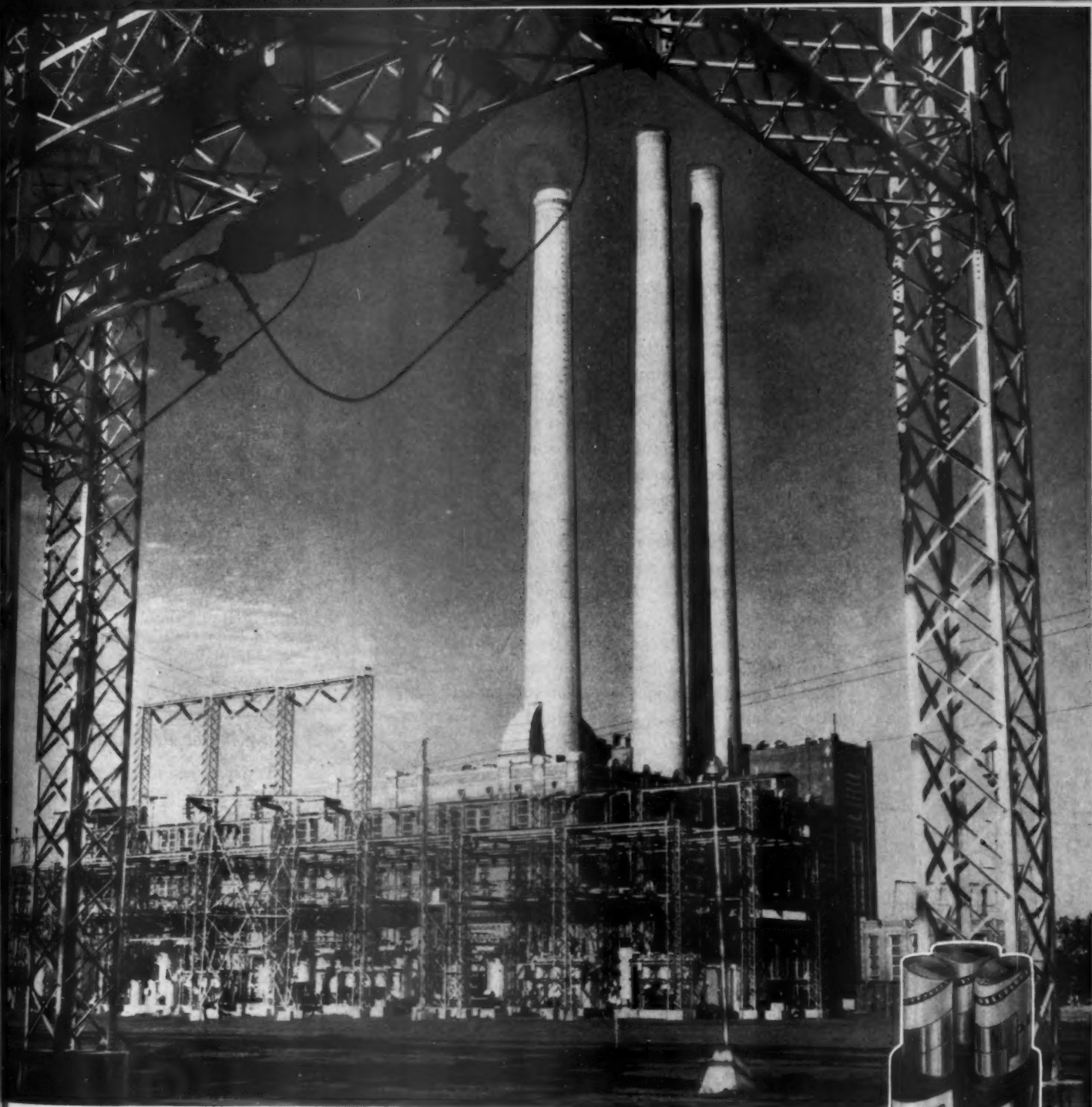
Manufactured to I.C.C. specifications, the line of Harrisburg Cylinders range in size from 14 to 400 cubic feet, and come in Domestic and Export types. Prompt delivery assured.

Write today for our Cylinder Catalog and prices.

HSC-PA-3/54

101 YEARS IN  PENNSYLVANIA'S CAPITAL
Harrisburg Steel CORPORATION
HARRISBURG 19, PENNSYLVANIA

For More Information Circle No. 384 on Inquiry Card—Page 17
For More Information Circle No. 350 on Inquiry Card—Page 17→



where there's **ELECTRICAL POWER**

To meet the needs of modern industry and living, power and light companies have doubled their generating capacity in 7 years and expect to double it again by 1961. Service-proved insulated cables are a vital link in the transmission and distribution of this power. Okonite has designed and manufactured dependable power cables for over 75 years. The Okonite Company, Passaic, N. J.

...there's **OKONITE CABLE**



Here's The Way To Get Production Up!

Everyone in industry wants production up... and tool costs down. It is simply good business. A good way to do this is to always be certain you are using tools with real "cutting-mileage" built into them. Chicago-Latrobe Reamers are these kind of tools.

Our files contain an almost unlimited number of testimonials from production people of the important industries. There is one point of similarity in the letters... they all say, in one way or another, "we never fail to get increased production from our machines when we use Chicago-Latrobe cutting tools." You can experience the same results... try them and see.

CHICAGO-LATROBE Double-Circle Reamers

Better Service, too!

Dealing with a Chicago-Latrobe distributor gives a two-way advantage. You get, (1), the fastest service, and (2), drilling and reaming counsel from trained experts. Contact him soon.

THERE'S MORE PRODUCTION IN
CHICAGO-LATROBE REAMERS!



Chicago-Latrobe

412 WEST ONTARIO STREET • CHICAGO 10

- DRILLS • COUNTERSINKS • CARBIDE TOOLS
- REAMERS • COUNTERBORES • SPECIAL TOOLS

For More Information Circle No. 351 on Inquiry Card—Page 17

Say Southeast Asia Tin Supply Will Stay Safe

Southeast Asia will continue to produce tin and rubber for the free world as long as the United States wants them according to The Malayan Tin Bureau.

In a recent issue of "Tin News", the bureau said that despite Communist gains in Indo-China the "supply of tin will continue to be fully dependable as the supplies of other materials produced in the free world." It pointed out that Malaya, Indonesia and Thailand are the largest tin-producing countries in Southeast Asia. "Malaya is winning its war against the Communist-led terrorists" according to the bureau. Malaya's success against the terrorists' efforts since 1948 to interfere with tin production is called a "far more potent factor in preserving Southeast Asia's tin supply for the United States than is the recent reverse in Indo-China in endangering that supply."

1 1 1

Jet Pump Motor Prices Reduced

A net price reduction of more than 6% on 1½-hp jet pump motors has been announced by the General Electric Company's General Purpose Component Motor Department. Smaller reductions have been made on most models of 1- and ¾-hp ratings.

The decrease in prices was made possible by accelerated production and improved manufacturing techniques, the company said. This is the second major reduction since this rating was introduced last year, they pointed out.

1 1 1



GAGE SELECTOR offered by Threadwell Tap & Die Co., Greenfield, Mass., can be used for both ring and plug gages in fractional or numbered sizes. It also gives a short, concise definition of the classes and specifications on how to order gages.

HOW HYATTS CAN HELP YOU...



**CUT
OPERATING
COSTS:**

**Always
specify
or replace
with ...**



The secret of operating economy is to keep your production rolling at *peak efficiency*—and what equipment has more bearing on this than the hidden bearings you so seldom see or think of? (Seldom, that is, until one fails and writes its record in red on your cost sheet!)

That's why so many alert purchasing agents always specify Hyatt Roller Bearings on the equipment they buy, or when ordering replacements—to fight costly friction and profit-killing downtime. Down through the years, Hyatts have conclusively proved they *save power—extend equipment life—last longer with less maintenance*. In the long run, the best bearings you can buy are the most economical—HYATTS!

HYATT

ROLLER BEARINGS

STRAIGHT ☐ BARREL ☐ TAPER ☐

HYATT BEARINGS DIVISION • GENERAL MOTORS CORPORATION • HARRISON, NEW JERSEY

FEBRUARY, 1955

For More Information Circle No. 352 on Inquiry Card—Page 17

313

NEW WILLSON

FeatherSpec®

Contour . line
BROW REST

Style FW3

adds extra comfort and protection!

This handsome bronze acetate butyrate frame quickly wins worker approval! Its integrally molded brow rest holds lenses well away from the eyes. Extra space permits cool comfort . . . and additional clearance for workers who wear prescription glasses.

The new FW3 FeatherSpec® is exceptionally light in weight. Distortion-free lenses are .040" thick acetate, clear or green, readily removable. Matching half-plastic, half cable temples adjust for snug fit.

These comfortable spectacles will be worn all day long without fatigue or eye strain. They provide ample impact protection for light grinding, wood-working, spot welding, inspection and other jobs which do not demand heavy duty goggles.

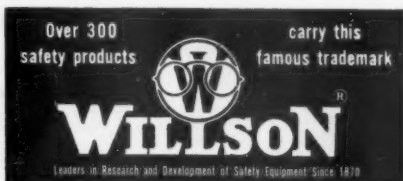
Ask your Willson distributor to show you the new FW3 FeatherSpec® with Brow Rest. Or write for bulletin.



**ALSO AVAILABLE—
POPULAR METAL FRAME
FeatherSpecs®...**

FW1—.040" thick clear or green lens, wire core plastic skull temples; also FW61, same with .060" thick lens.

FW2—.040" thick clear or green lens, industrial covered cable temples; also FW62, same with .060" thick lens.



WILLSON PRODUCTS, INC., 221 WASHINGTON ST., READING, PA.

For More Information Circle No. 353 on Inquiry Card—Page 17

Price Tags for Purchasing

(Continued from page 78)

It is not to be inferred from this that efforts should be relaxed in bringing specific purchasing performance to the attention of management. The general upgrading of purchasing compensation and the weight given to purchasing in incentive plans are problems that are still very much with us.

Ethics and Recruiting

On the other two basic questions raised earlier in this discussion, the evidence is disturbing. A clear majority of those who are closest to the situation agree that inadequate compensation has caused ethical standards to suffer and is failing to attract top grade personnel to handle tomorrow's purchasing responsibilities. Management, take notice!

1 1 1

Legal Excuses for Delayed Deliveries

(Continued from page 89)

to be performed, he must make it good unless its performance is rendered impossible by the act of God, the law, or the other party. Unforeseen difficulties, however great, will not excuse him.

"That the seller in this case, when called upon to surrender the use and control of its property to the public need, should thereby become liable in damages for failure to perform a civil obligation, is unthinkable. That its performance should be only temporarily excused would be less harsh and, if time were not of the essence of the contract, it might be thought that no hardship would result in a mere postponement.



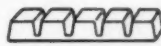
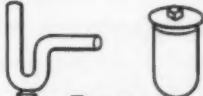
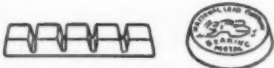

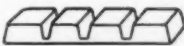
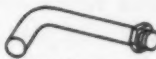





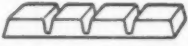





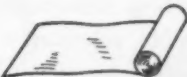

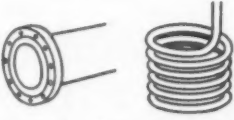

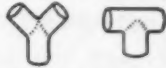
"To apply the rule of postponement, however, to the many contracts that were indefinitely arrested by government action, both in coal mines and manufacturing establishments during the war, would perhaps result in an accumulation of obligations to make deliveries or to receive and pay for goods that would be ruinous to the persons involved.

"It would seem to be a much more practical rule to establish that, when the performance became due, whether time was strictly of the essence or not, if performance could not be made because of government action then forbidding, the duration

(Please turn to page 316)

Whatever you want in lead and lead alloys



 Antimonial Lead	 Gaskets	 Mould Metal	 Traps
 Bearing Metal	 Hammers	 Needle Metal	 Unions
 Cames	 Inserts, Battery	 Ornaments, Lead	 Valves
 Die Castings	 Jewelers' Metal	 Pipe	 Wool, Caulking
 Expansion Anchors (Cinch)	 Key Leads, Piano	 Roof Flanges	 X-ray Shielding
 Ferrules	 Lined Products	 Sinkers	 Y. Tee, Etc. Fittings

...get it from
**National Lead
Company**

These are but a few of the lead or lead alloy items regularly supplied by National Lead. Whenever you need a lead product—for corrosion resistance, for caulking or sealing, for friction reduction, for sound deadening, for spark-proofing, for moulding, for masonry anchorage, for weight, or for any other duty lead does best, look to the leader in lead.

NATIONAL LEAD COMPANY

General Offices: 111 Broadway, New York 6, New York
Atlanta • Baltimore • Buffalo • Chicago • Cincinnati
Cleveland • Dallas • Detroit • Kansas City
Milwaukee • New Orleans • Omaha • Philadelphia
Pittsburgh • St. Louis • St. Paul
Boston: Morris P. Kirk & Son, Inc., Los Angeles, Emeryville (Calif.), Phoenix, Portland, Salt Lake City, Seattle; Canada: Canada Metal Co., Ltd., Toronto, Montreal, Vancouver, Winnipeg.



Mistakes

can be costly...

...especially when it comes to selecting the proper detergent for a cleaning operation. Cleaners are so varied, so complex, that the wrong choice may often prove costly, not only in time, but in materials. For instance, some cleaners are excellent for removing oil and grease from steel, but if used on aluminum the very same cleaners might cause a harmful etching effect. Even on such a simple job as cleaning painted walls, the wrong detergent might damage or eventually destroy the painted surface!

Because there are so many surfaces...so many soils to be removed...expert analysis and careful selection are most essential when safe and effective results are desired. Combine these goals with economy, and you have three good reasons why your Oakite Technical Service Representative is the man to contact when you're faced with a tough cleaning problem.

When you call in your Oakite Representative, he has at his disposal not only a vast personal store of practical experience and "know-how", but also the consultation services of an extensive cleaning laboratory manned by highly skilled chemists and cleaning engineers. Your Oakite Man has testing and control equipment, special plans and diagrams, technical data and servicing information—all directed toward finding the best possible solution to your cleaning problems—at the lowest possible cost to you.

Why not contact your Oakite Technical Service Representative today? Let him demonstrate why more and more industrial organizations are relying on Oakite to pave the way toward bigger savings...better results...in every imaginable industrial cleaning field.

* * *

Looking for more ways to save money? Here's an up-to-date guide that thoroughly covers practically every phase of metal cleaning—from treating raw stock to rust stripping. This 44-page handbook is fast becoming a standard reference in the industrial cleaning field, and its yours **FREE**. Call your Oakite Technical Service Representative today, or write Oakite Products, Inc., 54 Rector Street, New York 6, N. Y.



SPECIALIZED INDUSTRIAL CLEANING
OAKITE
REG. U. S. PAT. OFF.
MATERIALS • METHODS • SERVICE

Technical Service Representatives in Principal Cities of U. S. and Canada

For More Information Circle No. 355 on Inquiry Card—Page 17

Legal Excuses for Delayed Deliveries

(Continued from page 314)

of which obstacle was indefinite and unascertainable, the obligation was thereby cancelled and the contract discharged, and that the parties would each be at liberty and under the duty to save themselves as best they might by other contracts and arrangements."

When Conditions Change

A few years ago the Supreme Court of Minnesota said of this defense of "impossibility" to damage claims of a purchaser for delay or default in delivery:

"If a party contracts absolutely to do a thing which is not impossible or unlawful, he is bound to do it unless prevented by the act of God, the law, or the other party to the contract.

"There is a tendency to break away from this harsh rule of the common law in cases where the conditions have so materially changed, in an unforeseeable way, between the time of contracting and the time of performance, that justice requires that performance should be excused.

"While impossibility of performance of a contract is not generally a defense where the impossibility arises after the contract is made, an exception is made as to acts of government. No person is presumed to covenant against the act of sovereignty.

"The essence of the modern defense of impossibility is that the promised performance was, at the time of making the contract or thereafter became, impracticable, owing to some extreme or unreasonable difficulty, expense, injury or loss involved, rather than that it is scientifically or actually impossible.

"While the mere fact that performance of a promise is made more difficult and expensive than the parties anticipated when the contract was made, will not ordinarily excuse a party under obligation to perform, nevertheless there are other decisions allowing an excuse where very greatly increased difficulty had been caused by facts not only unanticipated but inconsistent with the facts that the parties obviously assumed to exist or to be likely to continue.

"The true distinction is not between difficulty and impossibility. A man may contract to do what is

(Please turn to page 320)

DIAMOND FIBRE COMPANY

NEWARK, DELAWARE

TO SIMPLIFY PURCHASING
TO IMPROVE DESIGN
TO SPEED PRODUCTION

OUTSIDE FABRICATION or DO-IT-YOURSELF?

Should an outside fabricator handle the machining of laminated plastic sheets, tubes and rods . . . or should the manufacturer take on the job himself? Naturally, much depends on the size, quantity and order frequency of the part required. As a rule, extremely small screw-machine plastic parts can best be bought from a fabricator who has accumulated the required special knowledge of the machining techniques involved.

C-D-F, an experienced fabricator with years of experience, has found that many small orders require an abnormal amount of skill to make. By the time you can experiment, test, and possibly reject much expensive material, the job could be completed and shipped by C-D-F.

result in lower prices for the purchaser.

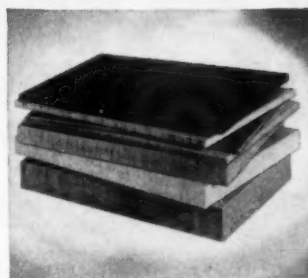
All in the C-D-F Family

A visit to C-D-F's shops at Newark, Del., or at Valparaiso, Indiana, illustrates the time and money savings made possible by placing your "parts" eggs in one basket. Modern fabricating shops are next to the presses and the machines making the Dilecto laminated plastics. Selection and handling of materials is fast. The job is in the C-D-F family . . . becomes a locked-down responsibility as to quality and delivery. Opinions, suggestions flow fast and free between the C-D-F team of sales, manufacturing and technical men. No time is lost in deciding what to do when a problem arises.

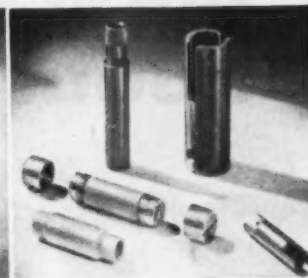
If you buy Dilecto (or any laminated plastic) in sheet, tube and rod form, and require the following machining operations:

turning • drilling • tap and thread • punching • shearing • sawing • milling • planing • forming and post-forming • molding • finishing • masking • lettering • engraving • metal cladding • combining with other materials (rubber, fibre, etc.)

It will pay to call on C-D-F. The economy of C-D-F's one source buying plan (see opposite page) can also be added to the speed and service of C-D-F's excellent fabricating facilities.



SHEETS



TUBES

C-D-F GIVES FAST, LOW COST SERVICE ON ANY FORM, SIZE, OR SHAPE OF DIAMOND® VULCANIZED FIBRE

Diamond Fibre is a genuine vulcanized fibre with good electrical insulating qualities and great mechanical adaptability. It is arc-resistant and non-corroding. It forms readily and is often used where high strength, toughness, and low cost must be combined.

C-D-F sells Diamond Fibre in sheets, rolls, strips, rods, tubes,

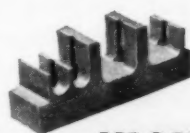
formed and machined specialties. Special grades include fibre for forming, tags, abrasive, bobbin, pattern, shuttle applications. Diamond Insulation (fish paper) and Built-Up Fibre are in the line. C-D-F also has a complete fabricating service for fibre receptacles, trucks, trays, cans and barrels.

Write for new 1955 Diamond Fibre Catalog.



Continental-Diamond Fibre
NEWARK, DELAWARE

For More Information Circle No. 361 on Inquiry Card—Page 17



**HIGH STRENGTH
MOLDED OR LAMINATED**



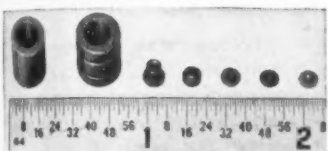
If you buy gears, couplings, insulators, molded plastics of almost every type — get the facts about C-D-F Celoron, a molded-macerated and/or laminated paper or cotton-based material, bonded with phenolic resins. Celoron is strong enough for automotive timing gears . . . and C-D-F has years of molding experience! From Celoron SHEETS you

can cut industrial gears to put silence in machinery. Or, C-D-F can MOLD CELORON to your specification at low cost. Small parts, insulating or mechanical supports can be made from Celoron. Call the C-D-F sales engineer. Get samples of Celoron. Write for Celoron catalog with horsepower ratings for gear cutting.



Continental-Diamond Fibre
NEWARK, DELAWARE

For More Information Circle No. 362 on Inquiry Card—Page 17



C-D-F's small parts machining and inspection gets results like this. These automotive electrical insulators are mass-produced, with uniform quality at rock-bottom prices.

The handling of thousands of set-ups for high speed, low cost production runs gives C-D-F an "experience bank" to draw from. C-D-F shop supervisors and personnel have a wealth of short-cuts, special adaptations, little tricks that



TAPES



LAMINATES

C-D-F MAKES BOTH WITH TEFLON

Polyfluoroethylene (TEFLON*), an exceptional resin, is transformed by C-D-F into insulating tapes, sheets, laminates, metal clad stock for printed circuits, packings, specialties. These products withstand high temperatures, have exceptional electrical properties, resist chemical attack. They can give new answers to once-difficult material selection problems.

C-D-F TAPES of polyfluoroethylene include unsupported and glass-based types. Tapes withstand 500°F., have practically zero water

absorption.

NEW C-D-F LAMINATES using polyfluoroethylene resin and fiberglass cloth give outstanding resistance to high heat with extremely low and stable dielectric losses. When METAL CLAD, the Teflon laminates are used in printed circuits for high voltage, high frequency applications.

MAKE C-D-F YOUR SOURCE FOR TEFLON, get engineering advice, save time and money by buying from this big, reliable source of supply!

*Du Pont trademark

Write for Samples and Catalog T-52



Continental-Diamond Fibre

NEWARK, DELAWARE

For More Information Circle No. 360 on Inquiry Card—Page 17

what's so special about this rivet?



IT'S MADE BY TUBULAR

At a glance a TUBULAR RIVET looks like any other rivet. But looking closer and beyond the rivet you see our plant and stock rooms. You discover how highly specialized the manufacturing of TUBULAR Rivets is. Here you see millions of rivets of every size and shape imaginable, many of which are engineered to solve a specific problem. Raw materials are available to provide a choice of metals from steel to pure silver in any one of eight finishes. Unlimited plant facilities with thousands of machines and highly skilled people necessary to produce millions of TUBULAR Rivets every day. All this highly specialized effort adds up to just one thing — TO PROVIDE OUR CUSTOMERS WITH THE TYPE OF SERVICE THAT NO MATTER WHAT THEIR RIVET REQUIREMENTS ARE, THEY'LL ALWAYS BE SATISFIED THAT THEY TALKED TO TUBULAR FIRST.

Tubular Rivet

& Stud Company

WOLLASTON (QUINCY) 70, MASSACHUSETTS

BRANCH OFFICES: Buffalo, Chicago, Dallas, Detroit, Indianapolis,
Los Angeles, Nashville, New York City, Philadelphia, San Francisco, St. Louis

For More Information Circle No. 363 on Inquiry Card—Page 17

Legal Excuses for Delayed Deliveries

(Continued from page 316)

impossible as well as what is difficult, and be liable for failure to perform.

"The important question is whether the unanticipated circumstance has made performance of the promise vitally different from what should reasonably have been within the contemplation of both parties when they entered into the contract. If so, the risk should not fairly be thrown upon the party obliged to perform."

1 1 1

Recent Legal Decisions Affecting Purchases

(Continued from page 126)

chaser. This invoice was accompanied by a uniform straight bill of lading, showing a claimed shipment of the sleds to the purchaser. This bill of lading and copy of the invoice were then sent by the manufacturers to the purchaser.

On November 21, the purchaser paid, by check issued direct to the seller, the amount of \$6,831 allegedly due upon invoice No. 1868. The manufacturer delivered this check properly endorsed to the bank, and the bank credited \$5,520 to the loans of the manufacturer, which loans were not secured by invoices to the purchaser, and the balance was deposited to the manufacturer's account and then withdrawn.

Later it was discovered that the invoice No. 1868 was false, fraudulent and fictitious. Also the bill of lading covering the alleged shipments of the sleds covered by this invoice was false, fraudulent and fictitious. The signature appearing on the bill of lading was forged. In other words, the manufacturer had not shipped the sleds to the purchaser, although the bill of lading and invoice so indicated. And the purchaser had paid the bank for the sleds. Soon afterward the manufacturer became a bankrupt.

In subsequent litigation, the higher court held that the purchaser stood to lose the \$6,831, because the bank was a "holder" in due course. The court said:

"The bank is a holder in due course of the Firestone (purchaser) check in the amount of \$6,831 given to Wood (seller) in payment of invoice No. 1868."

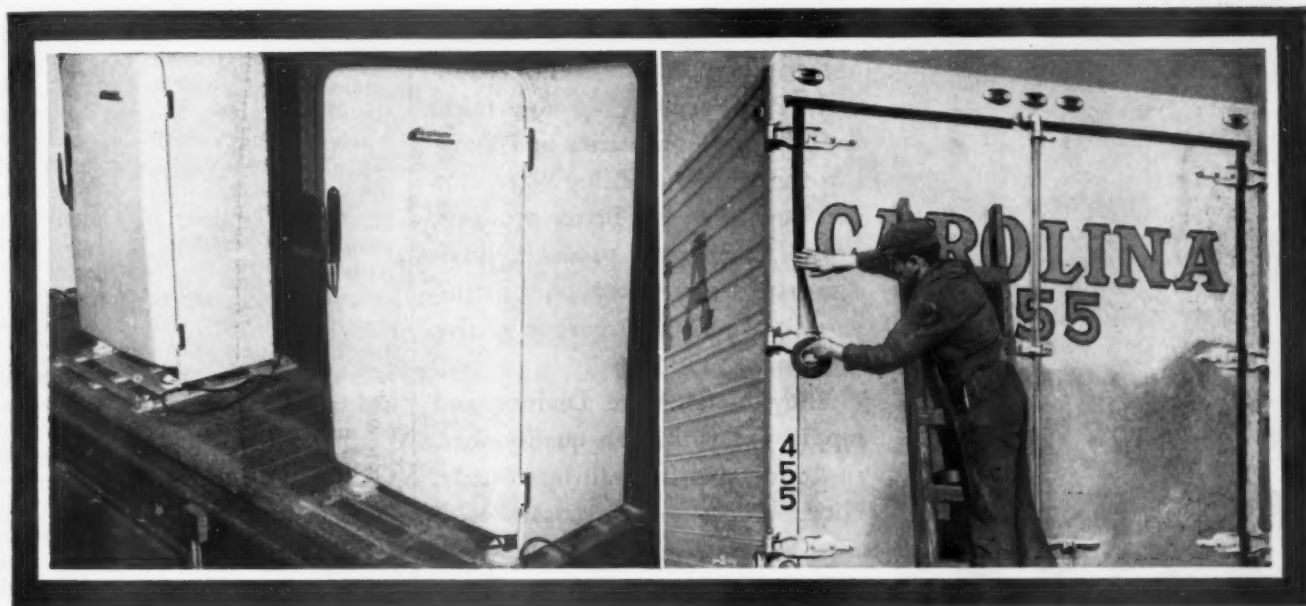
Motto: Be certain bills of lading are authentic before you advance money or pay the invoices.

Polyken

TAPES

CONTROLLED STRENGTH

SEAL FREEZERS FOREVER OR CARGOES FOR MILES



Polyken Tapes do pretty much the same job in both the applications shown above. In the freezer cabinets, *Polyken* is put on over the inside metal seams. The seal has to be tight and permanent. A leak will cause condensation damage to the insulation.

There can't be any cracks in those trailer doors either. The suction at the rear of a moving truck is so great

that rain and snow will penetrate even the smallest cracks and cause damage to the cargo. Here the *Polyken* Tape forms a seal that stands up under weather and vibration from the start to the end of the trip. Then it pulls off easily.

Polyken Tape seals out moisture in both cases . . . but the conditions are different and so are the requirements. That's why the *Polyken*

Tape used in the freezer cabinets is not the same *Polyken* Tape used on the trailer doors. To meet the requirements of specific jobs, *Polyken* Tapes have *controlled strength*—the controlled combination of adhesive and backing. Use the controlled strength for your job—do it right—at the lowest possible cost—and save.

The coupon will bring you complete information.

Polyken®

INDUSTRIAL TAPES

Polyken Products Department of The Kendall Company

Polyken, Dept. P-B
222 West Adams St., Chicago 6, Illinois

Please send me physical properties and further information on *Polyken* Controlled Strength Tapes, and a copy of your Tape Use Manual.

Name _____ Title _____

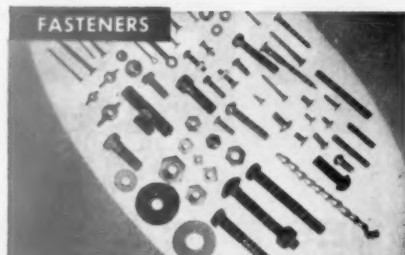
Company _____

Street Address _____

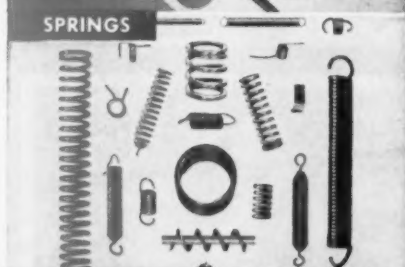
City _____ Zone _____ State _____

Basic Materials

FOR A MILLION PRODUCTS



FASTENERS



SPRINGS



WOVEN WIRE PRODUCTS



ELECTRONIC COMPONENTS



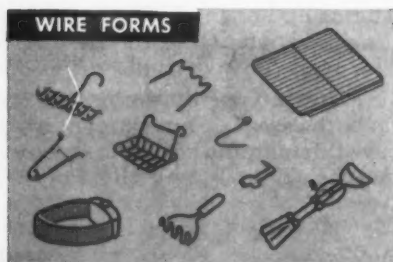
WELDING & METALLIZING WIRE

Alloy Wire, Rod and Strip . . .

Design Engineers are taking advantage of the outstanding mechanical and electrical properties and excellent formability of Alloy Wire, Rod and Strip. Results: Better products, smaller and lighter products, products that are more corrosion-resistant, more heat-resistant, more attractive—and more economical.

Alloy Metal Wire Division can supply you with high quality wire, rod and strip in Stainless Steels, Nickel Alloys and Electrical Resistance Alloys. Why not put these versatile materials to work for you?

**SEND FOR FREE
HANDBOOKS TODAY**



WIRE FORMS

ALLOY METAL WIRE DIVISION



H. K. PORTER COMPANY, INC.
of Pittsburgh
PROSPECT PARK, PENNSYLVANIA

The Human Side of Management

(Continued from page 87)

that he is a member of the team in good standing and is expected to play a team game.

This also is no one-way street. The boss has to be team-minded too. His part is not only to call the signals but to listen to complaints, settle differences, and try to reconcile personality conflicts. Occasionally there will be a situation which can be properly resolved only by eliminating a chronic trouble-maker. Even a tough boss can be effective if he is able and fair. However, the boss who has genuine friendliness, consideration and self-restraint usually gets better voluntary cooperation than the hard-boiled one.

Most that is appealing about religion is devoted to the proposition that we all can do better than we do, that each person has rights in human dignity, and that mortal man should be given a second chance when he makes an honest mistake. We all make mistakes, mistakes of the head, of the heart and of the hand. Only a bigot will summarily condemn a contrite fellow-sinner without a hearing or will judge him unworthy of a second opportunity, especially where there are extenuating circumstances.

It doesn't take much managerial ability for a boss to lie, as it were, in an ambush of managerial authority ready to pounce upon some hapless underling caught in a mistake, but it does require real breadth of character and positive foresight for the boss to help him to avoid that mistake in the first place. And it requires a genuine appreciation of people and their interdependence to be the kind of a boss who makes his people want to produce affirmative values for him to the extent of their ability. If he builds them up, they usually build him up. If he tries to tear others down in order to advance himself, he usually fails and finds he has built his future on sinking sand.

If your days are too busy to really digest the ideas contained in each issue of **PURCHASING**, have an additional subscription sent direct to your home. The same rate of \$4.00 per year applies.



Keyed...to your cost problems

One key that solves production and cost problems...that improves plant efficiency...is a fresh viewpoint, a new idea.

There's where the specialized services of your Chain Belt Field Sales Engineer can help you. His broad application knowledge...his familiarity with your problems...and the efficient performance of Chain Belt Products can help you find the right key to your problems.

for example: If "flooding" or "starving" of your belt conveyors is your problem, Rex Apron Feeders can assure that one right "key" to more economical and efficient operation. They closely regulate the flow rates of the material-handling system, substantially reducing costs.

for example: If efficient bucket elevators are your needs, there is a size and type to exactly fit your operations. Rex Conveying Engineers will study your flow rates, materials handled, space requirements and recommend the elevator that will assure most economical operations.

for example: If you're having "belt idler troubles," there's an answer in the complete Rex Idler Line. Impact idlers that cushion loadingshocks, self-aligning idlers that lengthen belt life, troughing idlers that cut maintenance costs, are a few of the many that can help you.

Whatever your needs...drive chain, conveyor and elevator chain, complete elevators, belt conveyors, feeders, roller bearings and transmission, buckets or sprockets, you'll relieve those production pains by looking to Chain Belt. See your local Field Sales Engineer or write direct to Chain Belt Company, 4764 W. Greenfield Ave., Milwaukee 1, Wis.

CHAIN BELT COMPANY

District Sales Offices and Distributors in all Principal Cities

For More Information Circle No. 367 on Inquiry Card—Page 17

FEBRUARY, 1955

325

LIFTS DIRT ... HOLDS IT OFF...

CINDET

100% ACTIVE — 100% SAFE!

NEW LIQUID SYNTHETIC DETERGENT

CINDET can be used in hard or soft water for hundreds of cleaning needs. It LOOSENS dirt quickly, LIFTING IT AWAY AND HOLDING IT IN SUSPENSION in a mass of creamy suds. Removes stubborn stains, rubber marks.

CINDET works fast, dries quickly, can be used safely on anything water itself won't harm—including the user's skin. Use CINDET to strip old water emulsion waxes from floors quickly and surely, AND FOR ALL GENERAL CLEANING PURPOSES.

CINDET is approved by the Rubber Manufacturers' Division of the Rubber Manufacturers' Association.

Write for Dolge literature on CINDET, and have your DOLGE SERVICE MAN demonstrate its easy, economical use.



FOR FREE
SANITARY SURVEY
of your premises
consult your
DOLGE SERVICE MAN

...THE SUDS
DO THE WORK!

Dependable
DOLGE

WESTPORT, CONNECTICUT

For More Information Circle No. 368 on Inquiry Card—Page 17

X-Rays To Play Major Role In Industrial Inspection Work

New uses of high-energy x-rays in combination with image intensifier systems for the inspection of materials, was predicted recently by Dr. Ernest E. Charlton, consultant in nucleonics and radiation at the General Electric Research Laboratory in Schenectady, New York.

"The tremendous progress which has been made in the last quarter of a century," he said, "has given us a great diversity of devices and techniques for the use of radiation in the non-destructive testing and inspection of all kinds of materials useful in both a peacetime as well as a wartime economy."

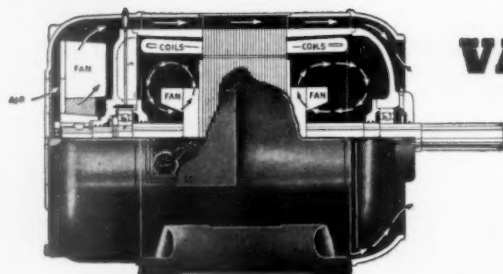
Looking to the future he said that new principles of multi-section tube design incorporating new materials "make it possible to predict a high-voltage x-ray generator could be built to operate at four million electron volts (Mev) that would not be a great deal larger than the existing 2 Mev mobile x-ray unit (resonance transformer).

"By the same token, we see no inherent design obstacles in building high-voltage radiation sources of this same basic design for operating voltages of 8 Mev."



POWER ECONOMY

at its money-saving best!



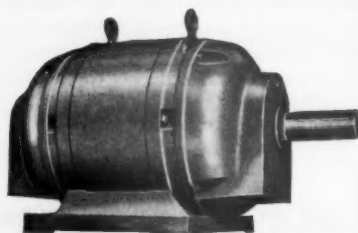
VALLEY Ball Bearing MOTORS

The newest and most successful development in air cooled motors. Totally enclosed, constant speed, continuous duty, squirrel cage induction, high torque, low starting current.

- **COOL RUNNING**—for continuous service, in high temperatures.
- **ENCLOSED BALL BEARINGS**—afford protection against harmful dust and grit—reduces friction 75%—cuts power costs.
- **OVERLOAD CAPACITY**—can handle any power load emergency—without damage to the motor.

SEMI-ENCLOSED—DRIP AND SPLASH PROOF!

Built for economical, continuous service in high temperatures. Sizes — ½ to 75 h. p. for wide adaptability.



VALLEY ELECTRIC CORPORATION

4221 Forest Park Blvd. • St. Louis 8, Mo.

Write For Descriptive Literature.

For More Information Circle No. 369 on Inquiry Card—Page 17

WHICH DOES YOUR SALESMAN GET...



O.K.?or K.O.?

Salesmen sometimes neglect to sell the PA on their product, and their company as a supplier. What happens then is very simple. The order goes to a competitor. That's a "K.O."!

Successful salesmen, on the other hand, sell the PA first, last and always. They know that two buying groups have to be sold — not only plant executives, but purchasing executives, too. To get the order, they know they need the Purchasing Agent's "O.K."

Advertising can help you sell the PA and keep him sold. That's why so many leading industrial advertisers use **PURCHASING Magazine**.

Since 1915, **PURCHASING** has been the PA's own magazine — the unchallenged leader in its field. Proof of the value of its editorial service and its high readership is **PURCHASING's** high renewal rate — 80.9%! And **PURCHASING Magazine** gives you the greatest available coverage of industrial purchasing agents.

If you sell an industrial product...

*put **PURCHASING** power behind it!*

PURCHASING MAGAZINE

205 East 42nd Street, New York 17, N. Y.

The basic magazine on any industrial advertising schedule!

NBP

ABC

BPA



A CONOVER - MAST PUBLICATION

FEBRUARY, 1955

335

LETTERS...

OPINION POLL

I have noted the poll that was taken on the subject, "Should Purchasing Agents Make Personal Purchases for Company Employees?" (November issue, p. 75.)

I would like to ask the number of companies that were questioned in this survey, the range of companies as to size, and the percentage of answers that were received; also, the opinion of the larger corporations on this subject.

Bradie Pipes, Pur. Agt.
Consolidated Supply Co.
Picher, Okla.

● 1,000 questionnaires were mailed; 599 answers were received—a 59.9% return. The names of those to whom Purchasing Opinion Poll ballots are sent are taken in rotation from our circulation lists in various states, so as to provide a broad cross section of industry and representative geographical distribution. The replies to this survey were not analyzed as to size of companies reporting. Our impression in preparing the results of this survey for publication was that the larger companies did not substantially differ from the smaller ones in their general answers, so that the detailed breakdown was not warranted.—Ed.

FILM ENJOYED

The "Industrial Purchasing" film portraying a modern purchasing department in action was shown at our Association meeting on December 2, and was enthusiastically received by those present, including a few who had had the opportunity of seeing this masterpiece before. The 28 members of the purchasing class at Sinclair College, of which I am instructor, also viewed the film, and it was very apropos since we were discussing the subject of "Assurance of Supply".

Thank you again for the opportunity of presenting this film to approximately 125 individuals this past week.

Ted R. Thompson, President
P.A. Assn. of Dayton, Ohio

CHRISTMAS GIFTS?

May I quote from the second paragraph of the article on the Christmas gift problem, in the December issue: "Many, if not most, companies have a policy—written or understood—against the acceptance of such gifts." If that is the case, one would imagine that by now the salesmen and vendors would have become so discouraged by the totally disinterested and negative attitude of purchasing agents that they would have given up endeavoring to show their appreciation in a tangible way, and therefore the problem which has been worrying purchasing agents so much, each year,

no longer exists. Who's kidding who?

I am associated with the insurance business, and we do not discourage our representatives from showing their appreciation to their clients by remembering them at this time of year with some small but useful article which causes no embarrassment and, we hope, will kindle at least a slight glow in the heart of the recipient. It demonstrates that our representative has appreciated his client's business and is interested in his welfare, without embarrassment or placing the client in a position where he feels obliged to deal with our representative in the future.

Should I denounce this practice to management as unethical, and refuse to supply our representatives? Certainly, if I condemn the practice of giving as far as other companies' salesmen are concerned, I shouldn't condone the same practice for our own salesmen. Let's carry this ridiculous attitude a bit further. Should I look askance upon the offer of Maxwell House coffee of a reduction of 25¢ per jar because it might be considered in the nature of a bribe to lure me away from Nescafe?

Admittedly, a gift which is out of proportion causes embarrassment. To return it immediately would cause the salesman embarrassment. The proper attitude to take, I feel, is to explain the matter as diplomatically as possible at the first opportunity, so that the situation will not recur. Thank goodness, I have never been placed in that position.

Mr. Uloz, in one of his letters, as reproduced with the article, suggests that purchasing people are intelligent. Shouldn't we be charitable and assume that the salesman and the vendor also have some degree of intelligence? And, if they feel that they would like to express their appreciation in simple, tangible form, it would seem to me to be the height of courtesy to decline to accept it.

The practice of Christmas gift giving in the business world is apparently abused, but the answer is not to give it blanket condemnation; to say "No gifts—period." We have a parallel in the alcohol problem. Prohibition is not the solution, but rather education and common sense. It is folly to damn all for the sins of the few.

If there are unscrupulous, greedy, pot hunting P.A.'s (and such would seem to be the case, judging from the dust that is raised yearly at Christmas) let us smoke them out, blackball them before their fellow purchasing agents, and denounce them to their management as a discredit and disgrace to business. But let's keep our feet on the ground and our heads out of the clouds. Let's be realistic and sensible about a matter that is not necessarily all business, cold as steel, but may also have the warmth of human kindness and friendship—especially at Christmas.

E. A. Weber, Supervisor
Purchasing Department
The Mutual Life Assurance
Company of Canada
Waterloo, Ontario

FIRM PRICE CONTRACTS

Recently a discussion arose in our purchasing department concerning "firm price quotations" and what constitutes such. We best can illustrate our argument by example.

Suppose ABC Company is interested in buying an article from the XYZ Company. A formal "request for quotation" is submitted to XYZ, requesting their quotation for such an article, and requesting their price, cash terms, f.o.b. point, and promised delivery date. The XYZ Company replies on their signed letterhead stationery, stating their price, terms, f.o.b. point, and promised delivery date. No specific mention is made of "firm prices" or any other price qualifying clauses. The buyer (ABC) immediately wires acceptance of the offer as stated, and advises that a confirming purchase order will follow at once. The confirming purchase order states that it is in confirmation of the telegraphic acceptance and repeats the essential parts of the offer, including price. However, an additional two words—"firm prices"—are typed on the bottom of the purchase order.

Now the question: Can the seller void the contract before performing on same because the words "firm prices" were added to the confirming order when the seller did not specifically state that his prices were firm? (He also did not state that they were not!) In other words, was there a contract, or a meeting of the minds, when the words "firm prices" were added to the confirming purchase order when the quotation did not state any price qualifying clause? Would the result have been the same if the acceptance telegram had not been sent and a purchase order was mailed with the words "firm prices" typed thereon?

We wish to advise that this question has not actually occurred in our business dealings, and is strictly an office argument. In order to settle this argument, we would appreciate your considered opinion.

W. B. Collings
E. I. du Pont de Nemours & Co.
Explosive Department
Terre Haute, Ind.

● In the absence of any qualification, a formal quotation is presumed to express a firm offer, and prompt acceptance by the buyer makes it binding upon the vendor. The addition of the words "firm prices" does not alter any essential feature of the agreement and therefore does not affect the validity of the contract. The vendor, of course, has the privilege of withdrawing his offer, without penalty, at any time prior to the receipt of the buyer's acceptance. Telegraphic acceptance reduces this risk through increased promptness of communication.